

XIX. *Entomological Observations and Captures during the visit of the British Association to South Africa in 1905.* By F. A. DIXEY, M.A., M.D., F.E.S., and G. B. LONGSTAFF, M.A., M.D., F.R.C.P., F.E.S.

[Read June 5th, 1907.]

PLATE XXV.

CAPE TOWN.

Lat. 34° S. Sea level. August 8th, 1905.

SURELY no one who was on deck when the "Kildonan Castle" anchored in Table Bay will forget the impressive scene. Behind the town-lights which gleamed along the front the grand mass of Table Mountain, clear cut against a streak of dawn, lay under the Southern Cross and Magellanic Clouds, while in the opposite quarter Jupiter and Venus shone brilliant beyond our experience, the latter reflected in the sea, and Orion standing on his head demonstrated that we were indeed in a Southern land. These astronomical facts had a bearing on our entomological operations, since we had to grow accustomed to the fact that the most promising hunting-grounds were slopes with a *north-east* aspect.

Faithful to our own science rather than to the association of which we were members, we had decided to go on to Durban by the same steamer, and put in as many days collecting as possible on the Natal Coast. This left us but a day and a half at Cape Town, in which to get a glimpse of its fauna and flora, and we were truly fortunate in that the Southern spring smiled upon us and provided, if indeed few insects, at any rate what Mr. Boswell would have termed "some fine prospects."

We were aware of the poverty of the Cape Peninsula in Rhopalocera, and Mr. L. Péringuey, the obliging director of the South African Museum, impressed the fact upon our minds, yet we were hardly prepared to find butterflies so scarce as in fact we did.

The best scheme seemed to be to drive to Camps Bay, stopping on the way to collect on the slopes of the Lion's Head, above Sea Point. While waiting for the carriage

we took in the garden of the Mount Nelson Hotel, on narcissus flowers, a few honey-bees, *Apis mellifica*, Linn., of the somewhat brighter race *adansonii*, Latr., that is common throughout South Africa, and with them their familiar mimic *Eristalis tenax*, Fabr. An *Empis* was also common in the garden.*

The country had all the appearance of early spring, and it was evident enough that we were much too early for good sport. Below the Lion's Head, by a little stream perhaps 200 feet above sea-level, we took two specimens of the brownish Lycænid *Cacyreus palemon*, Cram., quite unlike any "Blue" that either of us had previously seen alive; these and a Skipper that eluded us at Camps Bay were the only butterflies we saw that day.

Turning over stones proved disappointing; besides sundry scorpions and myriapods the chief tenants were ants, a larger yellowish species, *Camponotus maculatus*, Fabr., and a smaller black species, *Acantholepsis capensis*, Meyr. With the ants were a few beetles, such as two specimens of *Formicomus cæruleus*, an Anthiid, *Microlestia tabida*, Fabr., another beetle not yet determined, and two larvæ of a *Lampyris*.

Along with the beetles were sundry cockroaches, creatures we were afterwards to find numerous; among them were two *Deropeltis juncea*, Sauss., and immature examples of *Blatta orientalis*, Linn.

The best harbour for insects appeared to be a species of *Solanum*, a medium-sized, prickly shrub bearing numerous seed-capsules. On this plant the red Lady-bird *Chilomenes lunata*, Fabr., was abundant, also a black species, *Chilocorus* sp., unrepresented in the National Collection, was fairly common. Several other Lady-bird-like beetles, as yet undetermined, were found on the same plant, as well as one specimen of *Epilachna hirta*, Thunb. (the sole phytophagous genus in a family otherwise carnivorous). On the leaves were also two examples of the tiny *Abacetus minutus*, Dej.

A dark-green, scarlet-striped bug, *Lygæus festivus*, Thunb., accompanied the Lady-birds, while immature specimens of

* The original idea was to allude to every insect seen by us in our rush through South Africa, but at the time of going to press many species, especially among the *Orthoptera*, *Diptera*, and *Lepidoptera-Heterocera*, were still undetermined, and so for the most part are not mentioned.

the same were common inside the seed-vessels together with numbers of a fetid brown bug not yet named and what we took to be beetle larvæ. A third bug, of a pale scarlet colour when alive, frequented the same *Solanum*.

The few flowers that were out yielded nothing but a honey-bee and an *Empis* sp.

At Clifton, Camps Bay, on the under-cliff above the dazzling white beach, we took off the flowers of a shrubby *Senecio*-like Composite the small green Longicorn, *Promeces linearis*, Linn., the small bronzy bee, *Hulictus jucundus*, Smith, ♀, and *Apis mellifica*, 2 ♂.

A small Carabid, *Platynus rufipes*, Dej., found under a stone, completed our short list. As we often experienced afterwards, the South-east Trade brought up clouds and gave us a dull afternoon, so that collecting was practically over at an early hour.

PORT ELIZABETH, ALGOA BAY, CAPE COLONY.

Lat. 34° S. Sea level. August 11th.

The steamer did not give us a very long time at this place. After an early breakfast we took the train to ZWAARTKOPS, some seven miles to the northward.

The coast here is flat and fringed with sand-hills; by the railway the country is sandy and heathy; on the south side of the river its delta forms a level plain perhaps a mile wide between the sand-hills and the railway, this is diversified by brackish swamps and intersected by streams. On the drier portions of this plain Termitaria are numerous, from 1 foot to 2½ feet high, and 2 to 3 feet across; they are smooth and hard on the surface as if "rendered" with cement, many-chambered within. One long ridge of sand was covered with thorny shrubs. The most conspicuous plant was a tall *Aloc* (? *arborescens*, ? *ferox*), 6 or 8 feet high in full flower, but there were also at least two species of *Cotyledon* [*Echeveria*], and several species of *Mesembryanthemum*. Low growing *Euphorbias* were many and varied, one appeared to be absolutely stemless. There was also an ivy-leaved *Pelargonium*. A fresh easterly breeze swept over the open ground and added much to the difficulty of catching butterflies.

The males of *Synchloë hellica*, Linn., were rather common, flying fast, but occasionally settling; four specimens were secured. Of *Leuceronia buquetii*, Boisd., at least three

were seen, two were secured, both males, but a third managed to get out of the net; they flew strongly. The proboscis of this butterfly when fresh is of a bright green colour like its eyes. On the other hand, *Colias electra*, Linn., was more restrained in its movements, and two males were taken. Of *Pinacopteryx charina*, Boisd., several were seen, also two or three individuals of an orange-tipped *Teracolus*, probably *omphale*, Godt.

On the lee side of bushes which afforded a slight shelter, the Lycænid, *Leptomyrina lara*, Linn., was common, taking short flights and settling on the ground or on low plants. Nearer the sea on a sunny bank under the lee of the sand-hills, the very beautiful and singular Lycænid *Phasius thysbe*, Linn., was not uncommon, though apparently very local; it has a quick skipping flight and time allowed the capture of but two males and a female. In the same locality a pretty little rose-coloured Geometer, *Sterranthia plectaria*, Guen., was fairly common, but unfortunately only two specimens were brought away. On the open plain the familiar and cosmopolitan *Nomophila noctuella*, Schiff., was often disturbed and two were taken, as well as a specimen of the scarcely less widely distributed *Phlyctenia ferrugalis*, Hübn.

A piece of rough heathy ground near the railway-station yielded two Satyrids, *Pseudonympha sabacus*, Trim., and others were seen near the same spot; the genus is characteristic of South Africa. Close by a small Blue *Zizera lysimon*, Hübn., was netted, as well as a fine variety of *Sterrrha sacraria*, Linn.

Under some planks lying on the sand of the river bank we found among smaller bugs, our first specimens of *Physorhynchus crux*, Thunb. This large Reduviid, whose wings are so closely appressed to the abdomen that we for some time took it to be apterous, is very conspicuous when alive, the pale testaceous thorax and margins of the abdomen showing up the black cross upon its back, but the pale portions soon darken and the insect is dingy in the cabinet.

Turning over stones produced a few beetles: single examples of *Lycanthropa synæcoïdes*, Ques., *Harpalus exiguus*, Dej., and *Blenosia* [*Blacodes*] sp., as well as two *Trigonopus* sp., the last two both represented at South Kensington, but unnamed. With the beetles were several *Blattidæ*, *Deropeltis erythrocephala*, Fabr., ♀, an immature

Cosmozosteria sp., and three specimens of another *Blatta* which stands unnamed in the National Collection.

An old termitarium, long abandoned by its builders, afforded asylum to a number of insects, among which the most numerous and most conspicuous was the large Carabid *Microlestia rugoso-punctata*, Thunb.; there was also a solitary weevil, *Hipporrhinus appendiculatus*, Gyll.

The great spikes of Aloe proved attractive to flies and a bee, *Prosopis sandaracata*, Bingh. At the same flowers a long-tailed bird was very busy, but whether catching bees or eating honey could not be made out.

The Hopliine beetle *Gymnoloma atomaria*, Fabr., was taken on a flower. Among flies the cosmopolitan genus *Sarcophaga* was represented, and what would appear to be a *Dysmachus* was noted to settle on the ground.

While searching for beetles it was impossible to overlook the numerous empty spires of the large and handsome snail, *Achatina zebra*, Chem. [= *fulgurata*, Pfr.]; one of them was tenanted by a stump-tailed lizard. A couple of tortoises added to the picture.

[Among the small bees that we brought home was a small one (unfortunately not labelled) that was in all probability taken at Zwaartkops, though possibly at Cape Town, which turns out to be a new species, *Halictus inornatus*, Bingh. Its description, with those of other *Aculcata* taken by us in South Africa, will be included in a paper to be presented to the Society very shortly.]

EAST LONDON, CAPE COLONY.

Lat. 33° S. Sea level. August 12th.

An eager reconnaissance from the deck before breakfast revealed a tempting spot a mile or two to the north-east of the town where hills of blown sand capped by scrub suggested many possibilities. Accordingly we landed at the earliest opportunity and took a carriage. The road from the quay in the inner harbour brought us in a very few minutes into the QUEEN'S PARK, through which we were to drive. Our attention was at first caught by the weird forms of gigantic tree-Euphorbias, but these were soon forgotten, for as we passed the park gates we seemed to enter a very preserve of butterflies. To one of us the sight was new as it was beautiful, to the other it brought back vivid recollections of India and Ceylon; both agreed

to dismiss forthwith the Kaffir driver, who doubtless, while he pocketed his easily-earned fare, pondered on the strange results of European civilization and the increase of lunacy consequent thereon.

The park is formed out of a piece of the primæval scrub of varied growth, filling a horseshoe-shaped hollow between the town and a tributary of the Buffalo. It is intersected with roads, footpaths, and streams; in parts are artificial shrubberies and flower-beds, which are gradually ousting the natural scrub. In the varied scene of insect life the most obvious characters were clouds of *Mylothris agathina*, Cram., of both sexes, their brilliant white and orange colouring showing clearly as they fluttered slowly and fearlessly over the large bushes of Poinsettia [*Euphorbia pulcherrima*] glowing with their scarlet bracts. The males give out a strong scent very closely resembling that of sweet-briar. Amongst the *agathina* we took three specimens of the nearly allied *rüppellii*, Koch, of both sexes, and in another part of the Park a single male of the delicate *trimenia*, Butl., with its pale yellow hind-wings.

Less showy, but almost equally common, was *Belenois severina*, Cram., the "common white" of this part of the world. Both sexes were well represented, the male having a distinct scent. All were of the dry-season form; some were very small. Of *B. gidica*, Godt., a single male was taken, also strongly scented.* Of the more gaudily coloured *B. zochalia*, Boisd., two males and a female turned up.

Terias was represented by a single *brigitta*, Cram., a male; *Cotias* by two *electra*, Linn., also males; and *Teracolus* by two *omphale*, Godt., one of each sex. Last, but not least beautiful of the Pierines was *Eronia cleodora*, † Hübn., of which five specimens were taken, while a male *E. leda*, Dbl., was netted, but it managed to get away.

The widely-ranging *Limnas chrysippus*, Linn., of the typical African colouring, which, as is well known, is darker than in the Indian form, was flying slowly about in some numbers; two *females* that were taken yielded the "musk-rat" odour.

† * On the subject of scents in South African butterflies, see DIXEY, Proc. Ent. Soc. Lond., 1905, pp. liv-lix, and *ibid.* 1906, pp. ii-vii.

† It is well known that the local races of *E. cleodora* show great differences in the amount of black bordering to the wings. This in the East London specimens is reduced to a minimum. See DIXEY, Proc. Ent. Soc. Lond., 1905, p. lxvi.

Another butterfly that was very common was the Nymphaline, *Eurytela liarbas*, Dru. It has a curious slow gliding flight backwards and forwards about bushes, for flowers seem to have no attraction for it; but if the flight of this butterfly, and its coloration, brown with a transverse white band, remind one of the *Neptis* group, its general appearance and shade-loving habits suggest a Satyrid. *E. liarbas* orients itself with tail to the sun, but not very accurately. Conspicuous amongst the Nymphalines was our old friend *Pyramcis carlivi*, Linn., mostly in poor condition, but one very fine. The large genus *Precis* was represented by three species, *sesamus*, Trim., *archesia*, Cram., and *cebrene*, Trim., the latter not uncommon. One specimen of each was secured, but we had our first lesson in the elementary fact that to see a *Precis* is not always the same thing as to catch it.

A sunny bank cleared of scrub was grown over with a *Senecio* not unlike the Oxford *squalidus*, Linn. Amongst these flowers *Byblia goetzii*, Herbst, was rather common; they often settled on the ground; they were all females, one of "intermediate" character, the rest "dry." A single *B. ilithyia*, Dru., was "very dry." This and a specimen taken at Ladysmith were all of this species that we saw in South Africa.

One of the spots in the park where butterflies were especially numerous was a sunny bank close to an open drain whose black stream evolved so much sulphuretted hydrogen as to suggest pollution by a laundry. Some Poinsettia bushes (including one with the bracts pale yellowish instead of the more usual scarlet), growing where the smell was most sickening, proved quite as attractive to butterflies as others in sweeter situations.*

A few fine blue and black Papilios dashed about to tantalize us (they were almost certainly *P. nircus*, Cram., f. *lyæus*, Dbl.), but the common South African *P. demodocus*, Esp., proved much easier to capture, and between the Park and the town two specimens fell victims to our nets; one of them seemed to have been injured by a bird.

* This reminded me of a part of "The Happy Valley" at Hong Kong (in 1904), so fouled with human excrement that collecting was difficult, yet clouds of butterflies fluttered about the flowers of *Lantana camara*, Linn., growing around. There was no evidence that the insects were attracted by the ordure, but they were certainly not repelled. It is well known that *Charaxes* is a foul feeder. —G. B. L.

Satyrids were conspicuous by their absence. A single female specimen of the common dingy South African skipper, *Gegenes zetterstedti*, Wallgr. (= *hottentota*, Latr.) was the sole Hesperid seen, but the Lycænids were better represented by a solitary male of the far-ranging *Tarucus telicanus*, Lang, and several specimens of the "amphisbaenoid" tailed and lobed Blue, *Argiolaus silas*, Westw. This has a rapid and jerky flight and is fond of settling high up, so that the observation of its "false head" and its attitude at rest was attended with difficulty, but a male and four females were easily taken off the red blossoms of a tall shrub.

The only moth taken was the day-flying Lymantriad, *Euproctis mesozona*, Hmps., a male; this is a species represented in the National Collection solely by the type.

Among other orders the *Diptera* were represented by an *Idiu* and another fly; we did not take a single beetle, being indeed too busy with the butterflies. There were many small grasshoppers in the coarse grass by the foul stream, the most striking being the common South African *Catantops melanostictus*, Schaum, whose red tibiae and striped femora render it conspicuous. The only Aculeate taken was a worker *Belonogaster praunsi*, Kohl, one of two seen on the same plant. This genus, very characteristic of the country, has an extremely long peduncle to the abdomen. A specimen of the Sawfly *Athalia himantopus*, Klug, a species that Col. Bingham says is widely spread over the African continent, was taken. The bug *Atlocera stictita*, Westw., was caught flying: during life its underside is covered with a white waxy substance.

Among the things that we saw that morning, but did not catch, were a *Charaxes*, an *Amauris* (probably) and *Atella phalunta*, Dru.

DURBAN, NATAL.

Lat. 29° 50' S. Sea level. August 13-21.

At Durban we had the great advantage of an introduction to Mr. A. D. Millar. This gentleman and the members of his family are enthusiastic entomologists. It had been our intention to go northwards and explore the country about the mouth of the Tugela, but, acting on Mr. Millar's advice, we decided to stay in Durban and so make the best use of our time, which was here, as elsewhere, all too short.

The Ocean View Hotel in the residential suburb called THE BEREa is perhaps 200 feet above the sea; its garden yielded a few of the commoner butterflies—*Papilio dardanus*, Brown, a male, *Precis clelia*, Cram., *Mycælis safitza*, Hew., both sexes, and *Zizera lucida*, Trim., a male.

Lanes and bits of open ground near the hotel, still retaining much of the character of the primæval scrub, afforded fair collecting. It was in such a place that we were much excited at beating out our first *Salamis anacardii*, Linn., a large greenish nymphaline very leaf-like on the under-side and with a peculiar satiny sheen that gives it a very tropical aspect. There we found late in the afternoon both sexes of *Limnas chrysippus*, Linn.; with them were less familiar butterflies, *Acraea terpsichore*, Linn. (= *buxtoni*, Butl.) several (they feigned death in the net); *A. cabira*, Hopff., one; a pair of *Precis sesamus*, Trim.; an example of *Eurytela hiarbas*, Dru.; also several specimens of *Byblia goetzius*, Herbst, of both sexes, all more or less "dry" in character; this butterfly flies rather quickly low down and settles usually on the ground under a bush, but is easily disturbed. We also took at the Berea two males of *Belenois severina*, Cram.; two males and a female of *Mylothris agathina*, Cram.; and one of each sex of *Terias regularis*, Butl. Of smaller things we took one each of *Zizera lysimon*, Hübn., and *Gegenes zetterstedti*, Wallgr., and beating produced a Geometer, not yet identified.

The glow-lights of the Hotel only yielded the Boarmid *Tephрина arenosa*, Butl., and two Noctuae:—*Ophiusa mcjanesi*, Guen. (a moth that occurs in India, coming very near to Walker's type of *expedita*, a species sunk by Sir George Hampson), and *Eulaphygma micra*, Hmps. A humble fly, *Homalomyia canicularis*, Linn., was an inmate of the Hotel.

Sandy banks by the roadside were haunted by various Fossors, two of which, *Liris hæmorrhoidalis*, Fabr., a male, and *Pompilus diversus*, Smith, a female, exhibit Lycoid coloration, the last-named more especially with its yellow-brown wings tipped with black. With these were two *Dielis fasciatella*, Hübn., both males. The Syrphid fly, *Eristalis tæniops*, Wied., was too handsome to be passed by.

The first of his favourite localities to which Mr. Millar directed us was the old Cemetery at SYDENHAM. About three miles to the north of Durban, it lies on the north (sunny) side of a hill sloping very gradually towards the

Umgeni River, and may be some 400 feet above sea level. The Cemetery itself is neglected and overgrown with coarse grass and herbage, which doubtless nourishes many larvæ, while there are enough flowers to attract butterflies. The grassy lanes on either side afford excellent collecting ground, and, although most of the land around is cultivated, there is some scrub to the south.

Here we found, besides our familiar friend *Limnas chrysippus*, Linn., our first specimens of *Amavris albimaculata*,* Butl., both males. Single specimens of the beautiful dark red *Acræa petræa*, Boisd., and of *A. natalica*, Boisd., a male, were taken. The fore-wings of the last-named are when the insect is fresh of a fine rose-crimson, the hind part of the abdomen (in the male) being banded above with pale rose-pink and white, but white beneath. Males of *A. terpsichore*, Linn., were fairly common, especially among dead grass. *A. cneclon*, Linn., of which two examples were taken, was so successful in its mimicry of *L. chrysippus*, as at first to make one of us believe it to be that species.

In the Cemetery a few males of *Hypolimnas misippus*, Linn., were sailing around, flying high and seldom flapping their wings, but no females were observed. In an open space within the enclosure, as well as in a cleared mealy-field adjoining, *Precis elelia*, Cram., was locally common, settling on the bare earth and on the grave-stones; with them were a couple of *P. cebrene*, Trim., but that species was commoner in the dry bed of a spruit half-a-mile to the north; some of the specimens were very small. Three examples of *P. natalica*, Feld., were taken; *P. sesamus*, Trim., was not uncommon. Only two *Catacroptera* [*Precis*] *eloantha*, Cram., were seen, one of them in the dry spruit. *Eurytela hiarbas*, Dru., was very common about hedgerows. Single specimens of *Pyrameis cardui*, Linn., and *Salamis anacardiæ*, Linn., turned up. Several male specimens of *Byblia goetzii*, Herbst, were taken, but it was hardly common. *Charaxes varanes*, Cram., required considerable negotiation to effect its capture, as its flight is both high and strong, but it has a habit of settling at the end of a prominent twig, and is then fairly easily detected in spite of the resemblance of its under-surface to a leaf.

Of *Mycæsis safitza*, Hew., two females were taken, one

* For the specific distinctness of this form from *A. echeria*, Stoll, see ROTHSCHILD AND JORDAN, *Novit. Zool.* x, 1903, p. 504.

near the Cemetery, the other in the village of Sydenham (a mile nearer Durban), they were flying in full sunshine in the early afternoon. Of *M. perspicua*, Trim., three males were taken among dry grass, etc., near the before-mentioned spruit, they were rather common there but of restless habits, so that it was very difficult to see them settle. It was interesting to find that on separation of the wings and stroking the patch near the costa of the hind-wings they gave out a very strong scent quite distinct in character from that of *M. safitza*, Hew., which last has one of the strongest scents met with.

Of *Belenois severina*, Cram., a male was taken; but *B. gidica*, Godt., appears to have been commoner, since three males and a female were brought home. Three *Pinacopteryx pigea*, Boisd., two males and a female (near Sydenham village), and one *P. charina*, Boisd., were taken. We met with but one *Mylothris agathina*, Cram., a male, but *Eronia leda*, Dbl., was not uncommon, flying rapidly along a lane near the Cemetery, often in company with *Teracolus auxo*, Luc.; it was hard to catch, but three males and a female were secured. The genus *Teracolus* was more dominant at Sydenham than at any other locality which we visited, the most abundant species (especially in fields) was *T. auxo*, Luc. (the dry form called by Wallengren *tropa*). The males appeared to outnumber the females by two to one. On one occasion a specimen of *auxo* and one of *Eronia leda*, both males, were in the net together, they were duly pinched and as the net was lying open on the ground another *auxo* (sex not known) came and settled on it close to the dead butterflies! The next commonest species was *T. annæ*, Wallgr. (dry-season phase, = *wallengrenii*, Butl.), of which thirteen males and one female were taken. On the other hand, of *T. omphale*, Godt., we took but three males and one female, and of *T. achine*, Cram., a like number, while of *T. phlegyas*, Butl. [according to Trimen = *ione*, Godt.], we secured but a single male, of which it was noted that the purple tip was not apparent in flight. Butterflies of the genus *Terias* were in abundance locally, the specimens brought home proved to be *T. regularis*, Butl., four males (one of them "intermediate" in character, the rest dry), and *T. senegalensis*, Boisd., one male (dry). The only other Pierine taken was *Colias electra*, Linn., on the road about a mile on the Durban side of the Cemetery; the species was not common.

One *Papilio dardanus*, Brown, was taken at Sydenham, but *P. demodocus*, Esp., was common; it flew fast but generally not very high, twice at least it was observed to flutter its wings when feeding, as its congener *P. erithonius*, Cram., [= *demoleus*, Linn.,] has been observed to do in India. A specimen taken in Sydenham village was very small.

A considerable variety of Lycænids was taken, though they cannot be said to have been abundant: *Virachola antalus*, Hopff., a male; *Hypolycaena philippus*, Fabr., a female; *Axiocerces harpax*, Fabr., a male settled on a rose-bush in the Cemetery; *Lycæna botica*, Linn., one; *Zizera lucida*, Trim., two females; *Z. lysimon*, Hübn., one on the way; *Lachnocnema bibulus*, Fabr., four, in the Cemetery, this species sits with the abdomen turned up at an angle of 45° (like *Euchloë*); *Catochrysops malathana*, Boisd. (= *asopus*, Hopff.); while on the slopes of the spruit before mentioned was taken a single example of *Alæna amazoula*, Boisd., a female; this last was very cryptic when among the grass where it was found. In general appearance it so closely resembles a tiny *Aerwa* that at first it was placed next to that genus.

The Skippers again were varied rather than numerous, single specimens being taken of each of the following:—*Sarangesa motozioides*, Holland, almost invisible as it sat on a rock in the spruit with its wings spread out flat; *Netrobalanc canopus*, Trim., resting with expanded wings on the upper side of a *Solanum* leaf; *Baoris fatuellus*, Hopff.; *Gomalia alba-fasciata*, Moore; the large species *Rhopalocampta pisistratus*, Fabr., and *R. forestan*, Cram.; lastly *Caprona adelica*, Kirsch, a prettily marbled butterfly with a scaleless patch on the fore-wing, of which there are but two specimens in the British Museum.

The Syntomids *Pseudonaclia puella*, Boisd.; *Syntomis simplex*, Walk., two, a metallic-blue thing easily caught; and *Euchromia formosa*, Guér., were taken flying, the latter near the spruit. A crippled specimen of the singular Geometer, *Cænina pæciliaria*, H.-S., was taken in the Cemetery, a better one missed in the spruit, both among long grass.

The following *Hymenoptera* were taken: *Xylocopa divisa*, Klug, a male; a grey wasp, *Icaria cincta*, Lepel., ♂; the ant *Camponotus maculatus*, Fabr., eight specimens under a stone; and an undetermined Ichneumon.

The great order *Coleoptera* was very poorly represented

by two Lady-birds, *Ortalia* sp., beaten out of a composite creeper (apparently a *Senecio*), the species is represented in the British Museum, but unnamed; three *Haplolyceus*, apparently of two species [one possibly *congener*, Gerst.], were either beaten out of, or taken flying about the same creeper; *Acantholyceus constrictus*, Fabr., was caught flying slowly; two specimens of *Anomalipus porcatus*, Sol., were found under a stone; and four specimens of a Heteromeron were also found under stones, *Opatrum* sp., apparently in the National Collection, but unnamed.

The bugs, at least as regards individuals, were somewhat more plentiful; beating the climbing composites (one with yellow, another with lavender flowers) revealed a number of the fetid Pentatomid *Antestia variegata*, Thunb., at first taken by both of us to be Lady-birds; two other fetid Pentatomids, *Holcostethus goniodes*, Dall., and *H. scapulâris*, Thunb., were also taken.

There were two as yet undetermined Acridians among our captures as well as the common *Catantops melanostictus*, Schaum. Also a Dragonfly, *Orthetrum fuscioletum*, Ramb.

The BOTANICAL GARDEN lies on the slope of the hill between the Berea and the Race-course, and comprises portions of the original scrub, so that it naturally harbours many butterflies. Amongst these was a small female of *Limnas chrysippus*, Linn., which was actually mistaken by one of us for its mimic *Acræa encedon*, Linn., of which three specimens were captured. A single specimen of *Planema esbria*, Hew., and two of *Acræa cubira*, Hopff., were netted, one of the latter settled on a leaf with wings closed was inconspicuous. Of *Amauris albimaculata*, Butl., a male and two females were taken, one of the latter settled near the ground before 9.0 a.m., at which time it was noticed that Skippers were especially active.

Eurytela hiarbas, Dru., was common in the wooded parts of the garden, where also three *Precis elgiva*, Hew., were secured, together with two *P. natalica*, Feld., of the dark, or intermediate form (one very tattered), sitting on leaves with wings fully spread. The same bit of surviving scrub yielded two of the Satyr-like *Orenis boisduvalii*, Wallgr., one of each sex. *Neptis agatha*, Cram., was not uncommon, but as the garden is a good deal exposed to the prevalent south-east wind many of the specimens were worn. *Salamis anacardii*, Linn., was beaten out at

4.45 p.m., it had a very slow flight. Of *Byblia goetzius*, Herbst, we took a male of the dry form. In a shady spot were two *Melanitis leda*, Cram., the only specimens that we met with in South Africa. *Mycalesis saftza*, Hew., with its *janira*-like flight, was not uncommon in the shade, the four specimens taken in the gardens were all females of the dry-season form (var. *evenus*, Hopff.).

Belenois severina, Cram., was common; though the large majority were dry, amongst them was found a semi-wet male. It was noted of a pair *in cop.* that the male supported the female in flight. Only one *B. gilica*, Godt., a male, was taken. But if not quite the commonest white of the gardens, certainly *Pinacopteryx pigca*, Boisd., was the most characteristic; a dozen specimens, both sexes about equally balanced, were secured, they were all of the dry form (= *alba*, Trim.); it appeared to be an earlier riser than many butterflies. A pair were observed *in cop.*, the male supporting the female and when settled enclosing the female between his wings. Of *P. charina*, Boisd., two of each sex were taken, one of the females was less dry than the rest. *Mylothris agathina*, Cram., was scarcely common, males prevailing. In the more open grassy parts a few *Teracoli* were to be got: of *T. speciosus*, Wallgr., we took two males; *T. omphale*, Godt., was commoner, and we took five males and two females; of *T. achine*, Cram., one of each sex. Of *Eronia cleodora*, Hübn., we took but one; *Terias regularis*, Butl., was common enough, six specimens taken proved to be all females, of the dry form. We did not meet with this species outside Natal.

Just outside the northern hedge of the Botanical Garden a fine *Papilio moreania*, Ang., was taken flying low along with *Belenois severina*, Cram., and settling on wayside plants; others of the genus were *P. demodocus*, Esp., a male; *P. dardanus*, Brown, two males, a species that does not fly as fast as many of its congeners; *P. nircus*, Cram., f. *lyæus*, Dbl., a male and two females.

The *Lycænidæ* were conspicuous by their scarcity, only two being met with—*Hypolycæna philippus*, Fabr., a male taken as late as 5.0 p.m., and *Zizera lysimon*, Hübn., two, one of them beaten out but little earlier (together with two *P. pigca* and two *B. severina*).

But if Blues were scarce it was far otherwise with Skippers: of our old friend *Gegenes zetterstedti*, Wallgr., seven were taken, five being males, two females; this sits

in the familiar "skipper attitude" but the posterior third of the hind-wing is plaited; *Baoris fatuellus*, Hopff., one; *Acleros mackeni*, Trim., seemed to be common but was hard to catch, a male only was netted; of *Pterygospidea* [*Tagiades*] *flesus*, Fabr. [= *ophion*, Dru.], five specimens were secured; it has a rapid darting flight, dashing wildly up and down the glades like a flash of silver, and suddenly settling with wings widely spread like a *Bourmia*, usually (so far as our experience went) on the upper side of a leaf, though it was on at least one occasion seen to settle on the under side, which Mr. Trimen gives as its habit; the fine large skipper *Rhopalocampta keithloa*, Wallgr., rests in a singular attitude, the wings are raised above the back but do not meet, since both primaries and secondaries are



Rhopalocampta keithloa. Position of wings in resting attitude, seen from behind.

curved outwards somewhat spirally, moreover the posterior half of the secondaries is curiously plaited over the abdomen; a specimen of *R. forresti*, Cram., was beaten out as late as 4.45 p.m., darting away with a whirligig flight.

The Lymantriid moths *Euproctis punctifera*, Walk., three males, and *E. stellata*, Dist., two males, were beaten out one afternoon, together with the Larentid Geometer, *Epirrhoë subspissata*, Warr., one; the Acidalids *Craspedia pulverosaria*, Walk., and *Idaea spoliata*, Walk., one of each; the Deltoids *Hypena thersesialis*, Walk. [= *Ophiuche masurealis*, Guen.] three; the Pyrales *Bradina* [*Eritelita*] *admistalis*, Walk., one; *B.* [*Physematia*] *atopalis*, Walk., two; and some others not yet determined.

Two beetles only were captured, one the weevil *Stramia anconifrons*, Boh.; the other, *Cardiophorus* sp., was found under an old tarpaulin.

The sole Aculeate brought away was a beautiful light blue bee, *Crocisa picta*, Smith, ♂, which with its rapid flight suggested a small dragon-fly.

Three species of Diptera were met with: *Eristalis tæniops*, Wied.; *Syrphus ægyptius*, Wied.; and *Sarcophaga* sp.

A solitary Pentatomid bug, *Agonoscelis versicolor*, Fabr., was taken.

Of dragon-flies we took one of a species not yet determined, and two that would appear to be *Orthetrum fasciolatum*, Ramb.

In approaching Durban from the sea one first sights THE BLUFF, a ridge of high ground separating the harbour from the Indian Ocean. Access is obtained on the landward side by a steep path, the resort of many butterflies, being protected from the sea winds and lying fully open to the sun. It is at first hard to realize that south of the Equator hill-sides with *northern* aspects are the most likely hunting grounds for butterflies. At the eastern extremity, near the lighthouse, the Bluff is more or less bare; but the path towards the west soon leads into the scrub, or natural forest, of mixed growth with a scarcely penetrable undergrowth of the coarse Acanthaceous plant called by the natives "u-Bomaan." Through the scrub there has been cut a very wide road, grass-covered, which keeping parallel to the coast, runs up hill and down dale for at least a couple of miles, how much further we had not time to investigate. This road with its occasional glimpses of the sea, perhaps 150 or 200 feet below, afforded the most delightful collecting ground imaginable. One was constantly reminded of ridings through woods in Southern England, but rudely brought back by catching the net in the well-concealed thorns of the familiar "fern-asparagus" of our hot-houses and dinner-tables [*Asparagus ? plumosus*], or by a glimpse of the dusky form of a cryptically-coloured Kaffir in the gloomy shadow of the forest. But everything has its drawbacks; that of the Bluff was climatic, for all too soon after mid-day, on both our visits, the south-east Trade-wind freshened and great clouds rolling up from the Indian Ocean sent all well-regulated butterflies to bed.

Limnas chrysippus, Linn., was very common, especially towards the more civilized end of the road. *Planema esebria*, Hew. (curiously enough the only species of the Acræine group that we saw there), has a flight of moderate rapidity, but two were easily caught. Several *Atella phalanta*, Dru., were seen and a few netted. *Precis* was represented by a single *clelia*, Cram.

Eurytela hiarbas, Dru., was present but not common; of *Byblia goetzius*, Herbst, two were taken, one of them less "dry" than usual. *Salamis anacardii*, Linn., with its slow flight, looked strangely smaller than it is; it soon settled on a leaf and appears indeed to be a very sluggish insect. Two females of *Mycalesis safitza*, Hew., are recorded from the Bluff.

By far the predominant butterfly was *Belenois severina*, Cram., which was very abundant; the males largely exceeded the females in numbers, but a good many of the latter were seen. Though the very large majority were of the dry type, intermediate examples were also present. They appeared to be markedly gregarious, though this may have been due to the distribution of their favourite flowers. Two pairs were observed *in cop.*, in each case the female, hanging down impassive, was carried by the male. Of *B. gidica*, Godt., which was far less common, we took two males and three females. Most of this species were seen near the bottom of the path leading from the harbour up to the lighthouse. Of *B. thysa*, Hopff., we took two males; when on the wing they were very like the male of *Mylothris agathina*, Cram., in flight and general aspect. Indeed even as seen in the net the *Belenois* so closely mimics the *Mylothris* that one of us though specially on the look-out was deceived, and this even when the two insects were taken the same morning.

Pinacopteryx charina, Boisd., was decidedly common, but the sexes were very unequally distributed; we took 17 males to 2 females. One male specimen had lost the anal angles of the hind-wings, probably from the bite of a lizard. Of *Glutophrissa saba*, Fabr., a male was taken. The beautiful *Eronia cecodora*, Hübn., was quite common; we took 18 specimens which appear to be mostly males; it flies fast. The Plate accompanying this paper gives a fair idea of the brilliance of the butterfly and the conspicuous arrangement of its strongly contrasted colours, but it shows far more satisfactorily its cryptic coloration when resting, as it was several times observed by us, upon or close by yellow, blotched and perforated leaves of the *u-Bomaan*, as the Kaffirs call the shrub forming the bulk of the undergrowth on the Bluff. This plant, now known as *Isoglossa woodii*, Clarke [figured in J. Medley Wood's "Natal Plants," vol. i, Plate XXII, under the name of *Ectcinanthus origanoides*, T.], belongs to the natural order

Acanthaceæ, and is not the food plant of the larva.* The under-side of the hind-wing of the butterfly varies almost as much as the discoloured leaves, and the resemblance is general, that is to say, it is not a definite case of leaf-imitation. It should be noted that a coloured sketch of the leaves was made at the time, but in the absence of the butterfly, to avoid any tendency to exaggerate the resemblance. Mr. H. Knight's drawing is quite admirable.

Of *Teracolus achine*, Cram., we took a male; of *T. omphale*, Godt., two of each sex; but we naturally paid more attention to the beautiful "Purple-tips," *Teracolus speciosus*, Wallgr. [Butler named the dry form of this butterfly *jobina*, and considered the wet form to be the *ione* of Godart.] This was not uncommon, and we secured six males and two females; during its flight, which is rapid, it looks like an ordinary white, the purple not showing on the wing.

Of *Terias regularis*, Butl., we took a male, and of *T. senegalensis*, Boisd., a female, both dry.

We managed to get two specimens of *Papilio polices*, Cram., but one of them was sadly battered; also one male of *P. dardanus*, Brown, f. *cenea*, Stoll; a specimen of *P. nireus*, Linn., f. *lyæus*, Dbl., was easily secured flying low down when a cloud passed over the sun.

Curiously enough we took but a solitary Blue, *Virachola antalus*, Hopff.†

Single specimens of the Skippers *Gegenes zetterstedti*, Wallgr., a female; *Gomalia albofasciata*, Moore, and *Baoris fatuellus*, Hopff., were taken, the last named settled on a leaf in the sun, with the wings fully expanded; also two *Kedestes mucoma*, Trim.

We kicked up from grass, etc., two specimens of the exceedingly variable *Noctua Ophiusa lieardi*, Boisd., one of them settled upon the ground; in like manner we turned up a battered example of the restless *Noctua Remigia repanda*, Fabr., and found another at rest upon a leaf in the full sun. Here we took our first specimen of that beautiful Catocaline, the steel-blue and orange yellow

* Some further particulars were given when attention was first called to the matter. See LONGSTAFF, Trans. Ent. Soc. Lond. 1906, pp. 113, 114; but the Plate was not ready in time to be issued with that paper.

† See LONGSTAFF, *Some Rest-Attitudes of Butterflies*, Trans. Ent. Soc. Lond. 1906, p. 108.

Egybolia vaillantina, Stoll, known to the Colonists as the "Peach Moth." Also the Arctiid *Rhanidophora cinctigutta*, Walk., and the curious Geometer *Cartaletis libyssa*, Hopff., of which several were seen, but only one taken. It flies rather high with feeble fluttering action, and when on the wing somewhat recalls *Limnas chrysippus*, or an *Acræa*, which last it also resembles by exuding a yellowish juice when pinched, the juice in this case being odourless. Another Geometer, allied to our "Magpie-moth," was *Zerenopsis geometrina*, Feld.

The familiar *Phlyctænia ferrugalis*, Hübn., completes the list of moths, so far as we have been able to assign them names.

The yellow and chocolate-coloured Lamellicorn *Macroma cognata*, Schönh., was very conspicuous on the wing; the Clavicorn *Episcaphula aulacochiloides*, Crotch, was taken under a log, associated with ants and fungi. *Asida bicostata*, Fähr., and *Hister subsulcatus*, Mass., were also found under logs; a specimen was obtained of the Phytophagous Lady-bird, *Epilachna infirma*, Mulsant. The weevil *Sciobius pullus*, Sparr., a female, was beaten out of a clematis-like creeper [? really a *Senecio*]. The Carabid *Arsinoë quadriguttata*, Castelnau, was taken on low herbage.

Two crickets and several unnamed Acridians were captured, including one which made a loud snapping noise in leaping, whereas the very spiny-legged *Acrilium ruficorne*, Fabr., sat on a bush and made no attempt to escape. From under a log was unearthed an immature female *Blatta*, which Mr. Shelford thinks may possibly be a new species.

A blue wasp was taken, and several others seen; it turns out to be a new species and has been named by Col. C. T. Bingham *Notogonia dixeyi*; while under a log were found a number of the big-headed soldiers and thin workers of *Camponotus maculatus*, Fabr.

The conspicuous Reduviid bug, *Physorhynchus erux*, Thunb., was common under logs of wood, corrugated iron, etc., near the lighthouse; it has a peculiar pungent odour.

The sole fly brought home was apparently the cosmopolitan *Sarcophaga carnaria*, Linn.

CONGELLA, some three miles to the west of Durban, is also a very pleasant locality. The ground rises gradually
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from near the level of the harbour for perhaps a mile to the large banana plantations from 200 to 300 feet above sea level, the slopes being covered with wild scrub traversed by a woodland track, while through the lower portions are cut wide grass-covered roadways foreshadowing the development of an eligible building estate.

As usual, *Limnas chrysippus*, Linn., was to be had; we took five males and a female. We took a female of *Amauris echeria*, Stoll, and three females of *A. albimaculata*, Butl., the latter flew slowly and was easily caught. *Acræa* was well represented, the commonest species being the black, yellow-spotted *A. cabira*, Hopff.; of this one specimen was taken on *Lantana* flowers, but as a rule it was seen flying about the tops of trees, in which situation it looked a much larger insect than it is; thirteen specimens were taken, one of these which reached the hotel alive, having survived pinching as *Acrææ* so often do, proved very resistant to chloroform. *A. terpsichore*, Linn. [of which the southern form = *buxtoni*, Butl.], looks on the wing like a small British *Argynnis*; we took five. Of *A. petraea*, Boisd., which when alive is very rosy, both above and below, we took two. Of *A. natalica*, Boisd., we got one among grass; its hind-wings have a rosy flush in life, indeed the beauty of many of these *Acrææ* cannot be appreciated from cabinet specimens; *A. encedon*, Linn., of which we took three, is a feeble insect, with slow flight, but it again succeeded in passing itself off (momentarily) as *chrysippus*. A single male *Planema aganice*, Hew., completed the group.

Byblia goetzii, Herbst, flew over the grass like a "Pearl-bordered"; one settled on a red path, another on dead grass, both with wings erect, both inconspicuous; we took a male and four females, one of the latter was "quite dry." Two *Neptis agatha*, Cram., were taken flying slowly. *Precis elgiva*, Hew., a retiring insect, was found in the track through the wood, of four specimens one was much battered; of *P. elclia*, Cram., several were seen; of *P. natalica*, Feld., two, of the dry form, one worn; of *P. sesamus*, Trim., one settled closely appressed to the ground; also at the edge of the banana garden, on very red soil a *Precis* was seen three times quite clearly, but unfortunately missed; this was either *P. octavia*, Cram. (the wet-season form of *sesamus*), or something uncommonly like it; it nearly matched the red soil in colour, but was

somewhat more orange in tint. Of *Salamis anacardii*, Linn., one of each sex was obtained; of *Atella phalanta*, Dru., a single example; of *Charaxes varanes*, Cram., usually a high flier, a female was luckily netted off a shrub. *Mycalopsis safitza*, Hew., was common; four males and nine females were taken.

No specimens of *Belenois severina*, Cram., appear to have been brought back from Congella, but it was certainly common there; of *B. gidica*, Godt., we took three of each sex, one had the hind-wings chipped symmetrically, apparently by a bird; of two specimens taken *in cop.* the male was dry, the female very dry. Of *B. thysa*, Hopff., we took six males, but we have no record of its model *Mylothris agathina* from that locality. Both these butterflies have strong scents, which are distinct. Of *Gluto-phrissa saba*, Fabr., and *Nychitona alcesta*, Cram., single examples were taken; the latter has a slow, flapping flight. Of *Eronia cleodora*, Hübn., we took two; of *E. leda*, Dbl., a single female; of *Pinacopteryx pigea*, Bois., nine, four males and five females; of *P. charina*, Bois., a solitary male. Congella is not the sort of locality that *Teracolus* especially delights in, and the genus was represented by but single male specimens of *T. achine*, Cram., *T. omphale*, Godt., and three males of *T. speciosus*, Wallgr. Of *Terias regularis*, Butl., we took four males and two females.

Of *Papilio demodocus*, Esp., which frequents high and open ground, we took one in the cultivated region above the woods, but of *P. nircus*, Linn., f. *lyæus*, Dbl., we got four males by taking advantage of its habit of not infrequently flying low and even settling on the ground.

Of *Zizera lysimon*, Hübn., we took two; of *Turucus telicanus*, Lang, five, of which at least four were females, one with the fore-wings injured apparently by a bird; of *Lycæna boetica*, Linn., two; of *Castalius calice*, Hopff., one, a tattered specimen, and of *Virachola antalus*, Hopff., one female, boxed off a plant close to the ground; it was sitting head-downward, but the "false head" had been bitten off, so that it could not deceive again.

Among the Skippers were the familiar dingy *Gegenes zetterstedti*, Wallgr., two; *Baoris fatuellus*, Hopff., one; *Sarangesa motozi*, Wallgr., one; *Acleros mackenii*, Trimen, one male and two females, this and other Skippers were more active on dull days than most butterflies; *Eretis djælælæ*, Wallgr., one, settled with wings outspread;

and *Pterygospidea fesus*, Fabr., seven. Of the last species several were seen to settle on the *upper* sides of leaves, with wings spread out like a Boarmid.

The beautiful *Egybolia vaillantina*, Stoll, was rather common, it is a slow feeble flier, the wings flapping much, so it was easy to catch six specimens. The Lymantriad *Euproctis punctifera*, Walk., of which we took three males and a female, was very common, it is one of those insects which look on the wing far larger than they are, an appearance that may be due to bright colour (in this case orange) or to the mode of flight. Of the small Syntomid *Pseudonacليا puella*, Boisd., and the Chalcosiine *Anomæotes levis*, Feld., we took two each, this last looks surprisingly large on the wing.* Other moths taken were the Geometer *Gracillodes caffra*, Guen., one; the Pyrale *Antigastra morysalis*, Walk., one; *Tinægeria* sp., one, and several other unnamed Micros.

The Odonata were represented by two *Orthetrum fasciolatum*, Ramb. ♂, and one *Brachybasis rhomboidalis*, Beauv. The Orthoptera by a Blatta, found under a log, *Deropeltis autraniana*, Sauss., immature; also an Acridian, *Tryxalis stâli*, Boliv., which was very hard to see, being shaped and coloured like a piece of dead grass or straw.

Near the reservoir, on a shrubby lavender-flowered composite, were taken together the South African form of *Apis mellifica*, Linn., and the Syrphid *Eristalis tæniops*, Wied., which was noticed to be a fairly close mimic of the bee.

The beetles found at Congella were the Clavicorn *Megalodaene grandis*, Fabr., and the Heteromeros *Anthracias taurus*, Fabr., both found under logs; also *Endema nobilis*, Klug, and the very distinct Carabid, *Thyreopterus flavo-signatus*, Dej., under the bark of a dead stump among numerous ants.

FROM DURBAN TO JOHANNESBURG.

August 22, 1905.—The first point of the journey over the Highlands of Natal at which we had a few minutes' time to

* Compare my observations on the Indian Chalcosiine, *Aglaope hyalina*, Koll., in Trans. Ent. Soc. Lond. 1905, p. 68.—G. B. L.

leave the luxurious carriages of the Government Railway was INCHANGA, 2,470 feet above sea level. Here on some sandy ground near a stream bordered by rushes and coarse grass or on a bank with a few flowers (? *Senecio* sp.) we took a "dry" specimen of the Satyrid *Pseudonympha cassius*, Godt.; a wasp prettily marked with rich brown, black and white, *Polistes fastidiosus*, Sauss., ♀; a handsome Braconid, *Iphiaulax whitei*, Cameron; and an apple-green *Mantis* larva; also by sweeping the *Senecio*, etc., two *Apis mellifica*, Linn., race *adansonii*, Latr., ♀; an Asilid ? *Dysmachus* sp., and the grasshopper *Catantops melanostictus*, Schaum.

We spent the night at the Falls of the Umgeni, at HOWICK, Lat. 29° 28' S., 3,400 feet above sea level, and before dark turned over a few basalt stones, taking a number of ants, *Pheidole irritans*, Smith; two *Blattæ* with a very strong, sweet, rather pleasant scent, suggesting pear-drops (or amyl acetate), they were immature, possibly of a new species (R. Shelford); a small beetle, *Euleptus caffer*, Boh., and an Acridian, at present unnamed. It was cold at night here.

August 23, 1905.—At MOOI RIVER Station, Lat. 29° 17 S., alt. 4,600 feet, we took a solitary Acridian only.

At ESTCOURT, Lat. 29° 2' S., alt. 3,800 feet, on an open grassy place near the Station we were rather more successful. Two males of *Synchlœ hellica*, Linn., were secured; they were noticed when at rest to withdraw the forewings completely between the hind-wings, and to raise the abdomen. We also took a small Syntomid (as yet unnamed), a Lady-bird, *Epilachna similis*, Thunb.; two ants, *Camponotus cosmicus*, Smith, and a locust *Trilophidia*, sp.; this was discovered by Mr. G. A. K. Marshall, and declared by Señor Bolivar to be a new species, but it has not yet been named by him.

COLENZO, Lat. 28° 46' S., alt. 3,200 feet. The late afternoon was spent on the low ground south of the Tugela, between the river and the spot where Col. Long's guns were abandoned. The only butterflies seen were *Pyrameis cardui* and *Limnas chrysippus*. Several moths were kicked up, the Boarmid Geometers *Osteodes turbulenta*, Guen., two; *Zamarada pulverosa*, Warr., one; and *Nassunia petavia*, Stoll, a male; also two tiny Noctuæ with yellow hind-wings, *Pseudosterrha sperans*, Feld.; a Crambus and two Micros, none of them yet named. Two immature

Acridians of the colour of dry grass were taken, also a beetle *Scaptobius natalensis*, Boh., one, and the Heteromeron *Opatrum ? arenarium*, Fabr., six. Several specimens of the ant *Pheidole irritans*, Smith, were taken, also some Termites, two workers and two soldiers of the same community. The former when taken were carrying bits of grass and leaves, when brought back to the hotel they were dead and partly mutilated, ? by the soldiers in the same pill-box. The soldiers, on the contrary, reached home alive and pugnacious, for they would grasp the point of the forceps and allow themselves to be lifted off the ground without letting go.

August 24, 1905.—The next forenoon we ascended Hlangwane, the hill commanding the whole position, which unfortunately Buller did *not* occupy on December 15th, 1899. Again we saw no butterflies, and this morning we did not even get a moth! Under cow-dung on the plain two specimens of a dung-beetle were found, *Erato-gnathus natalensis*, Pér., and under stones, chiefly on the hill, we found an *Omostropus*, which M. Péringuey says is new; an immature bug and sundry ants, to wit, the small *Pheidole irritans*, Smith, of which the workers are very tiny; *P. megacephala*, Fabr., well deserving its name, and the big black *Mesoponera caffraria*, Smith; also a *Blatta*, sp., and an Ant-lion. Near the top of the hill a large family of the Cockroach, *Deropeltis erythrocephala*, Fabr., was found under a stone.

Under stones in and among the Boer trenches a number of large scorpions were found, olive-coloured, with testaceous rings, the large joint of the chelæ and tip of the tail pale testaceous, paler beneath. Other dwellers under stones were very young snakes, a nearly globular toad which squeaked piteously when taken up, and a gecko.

A drive to Hart's Hill in the afternoon made one realize completely what is meant by "carriage exercise," for the road is probably the worst that we ever traversed. It proved more interesting from the point of view of Military History than that of Entomology, nevertheless at the bottom of the Hill we kicked up *Sterrhanthia lineata*, Warr., a brownish Geometer near *Sterrha sacraria*, Linn.; on the slopes, we took under stones *Harpalus capicola*, Dej., ♂; *Pæderus crassus*, Boh.; a "Staph" represented both in the General Collection at South Kensington and in the Sharp Collection, but in both unnamed; the big ant

Acantholepis vestita, Smith; the tiny *Pheidole irritans*, Smith; and *Tetramorium solidum*, Emery.

On the summit of the Hill, in an old Boer trench, looking down over the slopes on which many a brave soldier breathed his last, was *Pyrameis cardui*, Linn., the only butterfly that we saw that day. It may be remarked that it was bitterly cold when we reached Ladysmith a little before midnight.

LADYSMITH, Lat. 28° 38', 3,300 ft., August 25, 1905.—The next day was devoted to Spion Kop, and naturally enough disputed questions of strategy and tactics diverted our attention from the *Arthropoda*. A specimen of *Precis scsamus*, Trim., was taken close to a Boer's grave near the farm-house below the Aloe Knoll, while a conspicuous Larentid, *Ortholitha pudicata*, Walk., with reddish fore-wings and orange hind-wings, was netted on the top of the Knoll. The beetle *Zophosis caffer*, Deyr., was found just below, running on the path. A small grasshopper was brought from the summit of Spion Kop, and a larger species from the lower slopes on the north side; this last was coloured like dead grass on the exposed portions, but the lower surface of the abdomen and the lower edges of the femora were of a deep bright red. On the road back to Ladysmith, near the half-way house, the conspicuous *Graphipterus cordiger*, Klug, was taken under a stone, as well as the dingy *Zophosis caffer*, Deyr.

August 26, 1905.—On our walk out to Waggon Hill and Cæsar's Camp we found under a stone on the open veldt a Carabid, *Polyhirma notata*, Perond.; when touched it emitted from its mouth a quantity of dark brown fluid having no perceptible odour. The dingy Boarmid *Semiothisa brongusaria*, Walk., was common on rough bushy ground.

The famous work at the western end of Waggon Hill was garrisoned by *Precis scsamus*, Trim., while the variable Geometer *Tephрина catalaunaria*, Guen., was taken close to the Earl of Ava's grave.

Within the trenches of Cæsar's Camp we took the Geometer *Tephрина arenosa*, Butl., as well as two Acridians.

Returning to Ladysmith we found on the northern, reverse, slope of Cæsar's Camp, under large stones near the head of the (then) dry spruit, the curious cockroach, *Homalodemus porcellio*, Gerst. (= *Derocalymna intermedia*, Kirby). It is remarkably flat and sits closely appressed

to the stones; it appeared to be extremely local. Between this point and the bridge over the Klip River just outside the town we found insects much commoner. The scrub is intersected with deep gullies, for the most part dry, but evidently conveying at some time much water to the Klip; in these gullies *Precis cebrene*, Trim., and *P. sesamus*, Trim., were not uncommon, also *Synchloë hellica*, Linn., of which a male and four females were taken. A male of *Colias electra*, Linn., and a female of *Teracolus eris*, Klug, were taken near the river. Single examples of *Ypthima asterope*, Klug, *Zizera lysimon*, Hübn., and *Tarucus sybaris*, Hopff., ♀, were secured, while other Lycænids were seen, as also *Pyraucis cardui*, and *Limnas chrysippus*.

The Quadrifid Noctua *Acanthonyx pratorix*, Dist., was taken resting in the dry bed of a spruit; the dingy Boarmid, *Ostcodes turbulenta*, Guen., and other Geometers were kicked up, including a beautiful green one (with somewhat the look of *Euchloris vernaria*, Hübn.) which got away in the undergrowth. An ichneumon and a common honey-bee were also taken. A small bug, *Polodus* sp. (not in the National Collection), was seen running on the sand; on being pinned it exhaled a strong odour of acetate of amyl. The beetle *Zophosis effer*, Deyr., while running swiftly over the sand was occasionally blown over by the wind.

The electric lights about the town and railway-station attracted a fair number of insects, the commonest being the large flying ant, *Dorylus helvolus*, Linn., ♂, a yellowish-brown insect with very flexible abdomen, whose position in the insect world was at the time a puzzle to us. When pinned, the thorax cracked and emitted a puff of white powder. The largest insect at light was the Lamellicorn, *Oryctes boaz*, Fabr., a rotten-wood feeder, of which two were taken. With these were the Noctuids *Audea variegata*, Hmps., *Borolia* [*Leucania*] *melianoides*, Möschl., *Homoptera canescens*, Walk.; the Syntomid, *Thyretes caffra*, Wallgr., ♂; three Phycids, *Microthrix inconspicuell*, Rag. (1) and *M. insulsella*, Rag. (2), and several other moths not yet named.

Two moths, *Plusia limbirena*, Guen., and a Micro, were taken in the bedroom of the hotel.

August 27, 1905.—An afternoon was spent on the north-eastern defences, "The King's Post," and "The Devons' Post," which were on low rocky hills with a little low scrub.

At the latter, which runs out towards Lombard's Kop, exposed to the cross-fire of two "Long Toms," the works were more solid and better built than any that we came across, and showed pretty plainly that there must have been skilful wallers among the Men of Devon. Single specimens of *Precis archesia*, Cram., *Acræa neobule*, Dbl. and Hew. (semi-transparent), and *Byblia ilithyia*, Dru., were taken at the King's Post, but the commonest butterfly there was *Pyrameis cardui*, for the most part small and rather worn specimens; flying with it was *Utetheisa* (*Deiopeia*) *pulchella*, Linn. Lizards were numerous, but although some time was given up to watching them, they were not seen to make any attacks on butterflies.

At the Devons' Post *Synchlœ hellica*, *Pyrameis cardui*, *Precis cebreus*, and *Zizera lysimon*, were taken. By a stream separating the two hills *Ypthima asterope*, Klug, was rather common, looking not unlike a Blue on the wing; futile attempts were made to see the butterfly settle, but it was restless. At the flowers of *Aloe ? ferox* were *Xylocopa hottentota*, Smith, ♀, the wasps *Belonogaster distinguendus*, Kohl, 3 ♂, and *Eumenes dimidiatipennis*, Sauss., ♀, a large red and black, brown-winged insect, as well as the Phytophagid *Ortalia pallens*, Muls., taken flying near the same flowers.

Anywhere along the ridge that strange locust *Phymatcus leprosus*, Serv., might be seen. This is of a grey- or yellowish-green, tinted with yellow, orange and pink. Its hard thorax though strongly tuberculate shines with an enamel-like texture. It is very sluggish, and unlike most locusts does not readily take flight, but when it does so makes a rattling noise. When touched it emits copiously a dark olive-green very fetid fluid, which dries up as a sticky varnish; this accidentally tasted was found to be bitter and unpleasant.

August 28, 1905.—At INGAGANE Station, Lat. 27° 56' S., altitude 3,900 feet, a specimen of the Geodephagous beetle, *Acupalpus natalicus*, Pér., was found under a lump of hard earth.

At NEWCASTLE, Lat. 27° 48' S., altitude 3,900 feet, a specimen of *Precis sesamus*, Trim., was found in a tiny dark kloof, its love of darkness was also noted on subsequent occasions. Several Acridians, whose determination is postponed, were taken. Also an immature *Blatta*, *Cosmozosteria* sp., was found under a flat piece of iron,

together with a community of the ant, *Acantholepis vestita*, Smith. The Heteromerous beetle, *Zophosis caffer*, Deyr., was caught running swiftly over sand.

At INKWELO, under the shadow of Amajuba (Lat. 27° 32' S., about 4,500 feet above the sea), a fly, *Sarcophaga* sp., was taken, but on this day at these altitudes the conditions were decidedly wintry, and the night of August 28th was cold.

JOHANNESBURG, TRANSVAAL.

Lat. 26° 10' S. Altitude 5,700 feet. Aug. 30th—Sept. 2nd.

The weather during our short stay was chilly and almost sunless, while the time available only permitted of two short afternoon walks in the outskirts just beyond West Cliff.

But three butterflies were seen, *Pyrameis cardui*, Linn.; *Papilio demodocus*, Esp.; and the Skipper *Baoris ayresii*, Trim., a species that does not appear to be widely spread. Moths were about as poorly represented by the cosmopolitan *Nomophila noctuella*, Schiff., by *Sterrhia sacra*, Linn., of the dingy South African form, and by that obscure Phycid, the almost cosmopolitan *Etiella zinckenella*, Treit.

The most promising mode of collecting appeared to be turning over stones, old tins, etc., on the veldt; this back-aching process yielded ants in great plenty, the commonest species being the big-headed *Camponotus marginatus*, Latr., which turned up in this locality only; close by, the more generally distributed *C. maculatus*, Fabr., was found, while the long black *Plectroctena caffra*, Spinola, the smaller *Philodole megacephala*, Fabr., and two *Cremastogaster sordidula*, Nyl. var., were also met with. There were in addition to the ants plenty of Termites.

The beetles included several Carabids, viz.: *Chlænium sellatus*, Dej., two; another *Chlænium* that may possibly be new; *Harpalus deceptor*, Pér., nine specimens; *H. angustipennis*, Boh., two; *Macrochilus dorsalis*, Klug, one; *Trechus rufipes*, Boh., one; then there were two of a *Trigonopus* that may possibly be new; the very distinctly marked *Graphipterus cordiger*, Klug; an *Opatrum* that is probably *arenarium*, Fabr., six specimens; an unnamed *Psaryphis*; a Lamellicorn of the genus *Aphodius* that is not represented in the National Collection; two weevils, *Hipporhinus corniculatus*, Fähr.; and *Brachycerus severus*,

Fähr.; also a Lady-bird, *Exochomus nigromaculatus*, Goetz., which is occasionally found in Britain.

Under stones were two Pentatomid bugs, *Dalsira modesta*, Fabr., and the lance-head-shaped *Gonopsis angularis*, Dall., also *Lygus rivularis*, Germ.; there were also several other bugs that are not yet named. Along with the bugs were several *Blattæ* and a black and red scorpion. A number of as yet undetermined Acridians were also taken.

By far the most interesting insect met with at Johannesburg was a Homopteron, *Gyaris walkeri*, Stål., allied to *Flata*, a genus well known from its alleged resemblance when at rest to a spike of flowers. It is of a creamy-white colour with eyes of a beautiful pinkish hue, which is unfortunately soon lost after death by cyanide. The insects are gregarious, and sit in rows of from three to five each near the base of the stems of a shrubby herb which attains the height of about two feet. Sitting for the most part with their heads up, they cannot be said to look in the least like flowers, the larvæ indeed look more like a *Coccus*, or even a luxuriant growth of *Penicillium*. When a plant harbouring the *Gyaris* is approached the insects jump off and then fly away a short distance much like moths. They were only found within a very circumscribed area.

Settled on rocks basking in what little sun was to be had several flies were captured, all males, of a species of *Dichotometopia* allied to *tessellata*, Macq., but probably new to science.

PRETORIA, TRANSVAAL.

Lat. 25° 53'. Altitude 4,500 feet. August 31st.

The British Association paid a mere flying visit to the political capital, but this just permitted a carriage-drive to the Wonderboom,* which stands at the foot of the northern slope of a range of hills about 3½ miles to the north of the city. So far as results were concerned the time and trouble, and more particularly the dust, might as well have been saved. Insects were very scarce save at the sweet-scented white flowers of *Dombeya densiflora*, which proved very attractive. There was however an incommensurability between the height of the trees and the length of the net-stick which was tantalizing in the extreme. A few white butterflies were seen as well as *Limnas chrysippus*, and a Lycænid. The pedunculated wasp *Belonogaster*

* A singular tree of wide-spreading growth.

griscus, Fabr., was abundant, and four males were with difficulty secured; the South African form of *Apis mellifica*, was also busily at work together with two smaller bees (♀ ♀). These last Col. C. T. Bingham has described as a new species under the name of *Ceratina vittata*, so an otherwise disappointing day was redeemed. A specimen of the Chafer *Oxythyrea marginalis*, Schönh., was taken on the lavender flowers of a *Buddleia* near the river, and close by a single example of *Spindasis mozambica*, Bert. On the veldt below the big tree, the common but pretty locust *Catantops melanostictus*, Schaum, was very active and difficult to secure; in the same place we netted two specimens of *Terias brigitta*, Cram., a species we had not met with in Natal.

RAILWAY JOURNEY FROM JOHANNESBURG TO
KIMBERLEY.

September 4th, 1905.

GLEN SIDING. Lat. 28° 55' S.

On the flowers of a low-growing *Senecio* (not unlike the Oxford *squalidus*, L.) a wasp was taken, *Anmophila* ? *argentea*, Brullé, ♀, which Col. C. T. Bingham says is not typical, but possibly a local form of the species; with this was a honey-bee, *Apis adansonii*, Latr., ♂. At this place *Pyramicis cardui* and *Colias electra* were noted.

BLOEMFONTEIN. Lat. 29° 7'; alt. 4,500 feet.

In the station-yard here the last named two butterflies were again seen, and a female *Synchlōë hellica* was taken.

NORVAL'S PONT, CAPE COLONY. Lat. 30° 38'; 4,000 ft.

The cosmopolitan *Plutella cruciferarum*, Zell., came to our lights.

COLESBERG JUNCTION. Lat. 30° 44'; alt. 4,370 feet.

At this station, which one naturally associates with the exploits of General French, several moths visited the lights of the train. They were the pretty silver-striped Geometer *Conchia nitidula*, Cram.; a *Noctua* (unnamed); our old friend of many lands *Nomophila noctuella*, Schiff.; and three Phycids, two of them being the dingy *Microthrix insulscella*, Rag.

KIMBERLEY, GRIQUALAND WEST.

Lat. 28° 43' S. Altitude 4,010 feet. Sept. 5-7, 1905.

The Diamond City with its white dust (in striking contrast to the red of the Golden City) did not impress one as a good locality, moreover we had but little spare time, and the weather, for the most part cloudy, was unfavourable.

At KENILWORTH the weevil *Cleonus mucidus*, Gerst., was beaten from *Senecio*, and two dead *Heteromera*, *Psammodes vialis*, ? Burch., and *P. scabricollis*, Gerst., as well as an earwig were taken under stones. Under one stone a large dark short-legged spider with globular abdomen was found in the midst of copious remains of beetles, etc.

On the veldt in the outskirts of the town, beyond the Old Kimberley Mine, the following were found by turning over stones, old tins, etc.:—The Lamellicorn, *Trox denticulatus*, Oliv.; the Heteromeron, *Psammodes vialis*, ? Burch., two dead specimens; the Weevils, *Brachycerus globosus*, Fabr., one; *Episus bohemani*, Auriv., one; *Sparticerus* sp., four; and *S. rudis*, Fähr., nine. None of the last three species were represented in the British Museum; for weevils their integuments are but moderately hard, but, on the other hand, in the red sandy soil under the old tins, or among the roots of composite plants, their rough surface as well as their colour make them difficult to see. Eight specimens of the Carabid, *Baeoglossa melanaria*, Boh., were found in holes in the ground under stones or tins; they ran fast when disturbed. It was noted that under the South African sun even large stones, not to speak of the omnipresent rusty tins, afford so little protection that in many cases insects were found lurking in holes in the earth beneath, so that they were doubtless often passed over. Besides the above beetles the stones and tins harboured a number of the Ant *Monomorium subopacum*, Smith, race *australe*, Emery.

Under an old calf's foot and pastern were three specimens of *Necrobia rufipes*, Fabr., a British insect; two of the cosmopolitan *Dermestes vulpinus*, Fabr., and another beetle not yet named. The fly *Agria nuba*, Wied., was captured in the same locality.

At the DUTOITSPAN MINE we saw *Pyraucis cardui*, and took two *Synchlœ hellica*, one of each sex, as well as the Locust *Acrotylus* sp. A Longicorn, *Tetradia lophoptera*,

Guér., was seen on the wing, it settled on the light grey road of the Compound and disappeared, being so exactly the colour of the dust that it was most easily found by feeling with the hand!

At the WESSELTON MINE, on a weedy piece of waste ground, two specimens of a Lycænid, so worn as to be scarcely recognizable, were netted; as well as two of a very elegant Bombylius, *Systæchus* sp., which was only to be seen on the wing as the light caught its long white pubescence.

A dull, cheerless morning was spent on the GOLF LINKS, in sight of the Memorial to the Honoured Dead. There seemed to be nothing to do but turn over stones, which, though doubtless an annoyance to the golfers, afforded shelter to a number of *Arthropoda*. The most interesting beetle was *Graphipterus cordiger*, Klug, a quite soft insect of a drab colour bearing a black mark upon its elytra which has been variously compared to a heart, a fiddle and a tennis-racquet; of this we secured eight examples. Of the weevil *Sparticercus rudis*, Fähr., which was very common, we took seven specimens, again noticing its resemblance to the red soil of the veldt. It may be here mentioned that the general colour of the soil at Kimberley, as at Johannesburg, Pretoria, Durban, and indeed most of the places that we visited, is red; the white dust that is so disagreeable in the town is derived from the mining refuse, and a very similar dust is met with near the gold mines of the Rand. Among the common *S. rudis*, Fähr., was found another *Sparticercus* which shammed death, this species is not represented in the British Museum collection; we also took two *Episus bohemani*, Auriv. The *Carabida* were represented by one *Bævoglossa melanaria*, Boh., three *Harpalus hybridus*, Boh., all females, and five *H. affinis*, Pér. Dead examples of the Heteromera, *Psammodes scabricollis*, Gerst., and *P. vialis*, ? Burch., with other remains showed that it was not the season for that genus, and a large beetle-larva which was unearthed pointed to the same conclusion.

With the beetles were several bugs and an ant, *Aphænogaster barbara*, Linn., var. *capensis*, Mayr., accompanied by a number of "silver fish" (*Thysanura*).

RAILWAY JOURNEY FROM KIMBERLEY TO BULAWAYO.

September 7th and 8th, 1905.

TAUNGS, BRITISH BECHUANALAND. Lat. $27^{\circ} 33' S$. Alt. 3,590 feet.

The very distinct Catocaline Noctua *Chalciope rivulata*, Hmps., and a Tinea, not as yet determined, came to light in the train.

MOCHUDI, BECHUANALAND. Lat. $24^{\circ} 22' S$. Alt. 3,100 feet.

Two flies which would appear to be the too familiar *Musca domestica*, Linn., were taken near the station, as well as an obscure beetle found under a stone.

It was somewhere near this place that we entered the forest characteristic of this part of Africa, an open or easily penetrable growth, with deciduous trees of moderate size having a tendency to be flat-topped.

ARTESIA. Lat. circa $24^{\circ} S$. Alt. 3,100 feet.

A female of the very African-looking Lycenid, *Zeritis damarcensis*, Trim., as well as a specimen of the wide-ranging *Lycæna batika*, Linn., also a female, were netted; the hasty turning over of a few stones yielded the pentatomid bug *Diploxys acanthura*, Westw.; four ants, *Camponotus maculatus*, Fabr.; also a dead beetle with a very hard carapace, *Anomalipus* sp., represented in the British Museum collection, but without a name; as well as a weevil, *Sparticercus* sp.

MAHALAPYE. Lat. $23^{\circ} 3' S$. Alt. 3,300 feet.

Here we entered the tropics, an event that was signalled by the capture of a male *Catopsilia florella*, Fabr., and the determination of its sweet scent.

PALAPYE ROAD STATION. Lat. $22^{\circ} 44' S$. Alt. 3,010 feet.

The beetle *Xenitenus dilucidus*, Pér., was taken in the train.

SERUI. Lat. $22^{\circ} 27' S$.

The electric lights of the train attracted a number of insects while stopping at this station, among those that were secured were the very small drab Noctua, *Entlemma*

sp. (near *fadosa*, Guen.), a Quadrid Noctua, *Homoptera* sp., an Acontiid Noctua, *Areyophora rhoda*, Hmps. n., a flying ant, *Mesoponera caffraria*, Smith, a female; and several moths not yet determined, comprising some other Noctuae, a Geometer, a Phycid and a Crambus.

BULAWAYO, SOUTH RHODESIA. Lat. 20° 9' S. Alt. 4,470 feet. September 9-11, 1905.

The most promising spot near the Matabili Capital was, we were told, the Waterworks situated a few miles to the westward, at an altitude of perhaps 4,600 feet.

Two shrubs in full flower proved very attractive to insects: one with white sweet-scented flowers, *Dombeya* ? *rotundifolia*, Harv. [Nat. Ord. *Stereuliaceae*], was frequented by *Acræa doubledayi*, Guér., though these butterflies seemed shy of actually settling upon the flowers. Altogether we took seven specimens, three about the *Dombeya*. On these flowers we also took the slender Scoliad *Myzine capitata*, Smith, ♂, and the long-bodied wasp *Belonogaster griseus*, Fabr., ♀; there were also two beetles of the genus *Mylabris* (or perhaps *Ceroctis*), a Cantharid of very similar colouring to the Longicorn *Hylomela scarpunctata*, Fabr., a species that we met with at Ladysmith and East London, but not nearer; two of the Cetoniid, *Ihabdotis* [*Pachnoda*] *sobrina*, G. and P., were also taken on the *Dombeya*; it is an active insect easily alarmed and taking flight. This dark olive-brown beetle is less conspicuous on the white flower than might be expected owing to the small white spots with which it is relieved breaking up the mass of its ground-colour. Another entomologist had discovered the attractive powers of the *Dombeya* before we did—the yellowish-grey, yellow-marked *Chamæleon dilepis*, Leach, ♀; it was surprising that so large an animal could be so inconspicuous.

The other attractive shrub was a species of *Combretum* [Nat. Ord. *Combretaceae*] with spikes of yellowish-green flowers having the superficial appearance of catkins. This was especially attractive; it was frequented by *Acræa doubledayi*, Guér.; but the Lycænid *Axioceres harpar*, Fabr., settled on it in large numbers, and seven specimens, five of them males, were secured; they closely resembled when so settled the curiously formed old dry seed-vessels of the *Combretum* of which many remained on the bush.

Other Lycænids at the same flowers were *Crudaria leroma*, Wallgr., of which only two were obtained, together with single specimens of *Tarucus telicanus*, Lang, ♂, and *Alocides? taikosama*, Wallgr., ♂. With these butterflies were a number of other insects, conspicuous among them the bright coral-red Braconid, *Iphiaulax whitci*, Cameron, its smoky-black wings bearing a scarlet (or yellowish) triangle on the costa, and the large blue-winged pedunculated wasp *Eumenes dyschera*, Sauss., var. ♂. Less striking hymenoptera were *Icaria cincta*, Lepel., ♀, and the new species *Myzine rufo-nigra*, Bingh., ♂. The Spheg *Chalicodoma calocera*, Smith, ♀, was taken at a flowering shrub, whether *Combretum* or some other is uncertain, but be that as it may, the *Combretum* certainly produced an unnamed bug and sundry flies: *Rhynchomyia* sp., *Exoprosopa* sp., and *E. ?lar*, Fabr.

Apart from those found on or about flowers, insects were scarce, and it took a good deal of work to secure the following butterflies:—*Teracolus topha*, Wallgr., a female; *T. antigone*, Boisd., a female which flew slowly near the ground without settling; *T. annæ*, Wallgr., a female; *T. achine*, Cram., two males, and *Terias brigitta*, Cram., a male and two females, the former less "dry" than the latter. Certain dark, yellow-striped orthopterous larvæ were seen on the stems of *Combretum* and other shrubs; they were very gregarious and were observed to advance and halt together as if drilled.

On a stretch of somewhat lower flat country covered with coarse dead grass we saw many individual specimens of the Red Locust, *Schistocerca peregrina*, Oliv., but no swarms; we spent much time in endeavouring to catch these, for they are extremely wary and took to flight when approached within four or five yards. The general colour of the living insect is dark mahogany-red, with some greenish-brown shading, but the wings shine brightly in the sunlight, so that the insects a good deal resemble small flying-fish.

On September 10th we had a delightful excursion to THE MATOPOS, a wild group of granitic hills about forty miles to the S.S.W. of Bulawayo. The veldt may be from 4,500 to 5,000 feet above sea level, the kopjes rising from 100 to 800 feet higher. In the wider valleys are stretches of coarse grass, but for the most part the country is covered by somewhat open scrub and forest, not especially tropical

in aspect. Some of the hills are wooded, others mere bosses of almost smooth granite. Such a country was most attractive, but the length of the drive to and from the terminus left little time for collecting.

The commonest butterfly was *Aeræa doubledayi*, Guér., which was taken flying among long grass as well as at the flowers of *Combretum* and *Dombeya*, altogether eight specimens were taken; a single example of *A. calderena*, Hew., was taken among long grass, together with *Ypthima asterope*, Klug, var. *norma*, Westwd., and the Blue *Everes eissus*, Godt.

The catkin-like racemes of the shrub *Scleroearya caffra*, Sond. [Nat. Ord. *Anacardiaceæ*], were also very attractive, yielding the Lycænids *Hypolycaena cæculus*, Hopff., a female, and the very beautiful and distinct *Stugeta boukeri*, Trim., a male, also the now familiar *Apis adansonii*, Latr., ♀; but far more startling than any of these was the beautiful long-beaked Sun-bird with blue throat surmounting a breast of crimson shot with violet.

On the branches of the *Scleroearya* were a number of *Polyrachis schistacea*, Gerst., a dull black ant with nearly globular abdomen.

A small tree with sweet-scented, viscid, yellow-green flowers, a species of *Gardenia** [Nat. Ord. *Rubiaceæ*], was extremely attractive to insects, and it was interesting to watch the Sphinx *Cephanodes hylas*, Linn., hovering amidst the numerous Carpenter-bees, the commonest of which, *Xylocopa caffra*, Linn., ♀, var. *mossambica*, Grib. (with two white rings on the abdomen), it appeared to mimic; of the other species *X. olivacea*, Fabr., and *X. divisa*, Klug, var., single examples only were secured, females; the former species is very handsome, its thorax being of a beautiful "old gold" colour. A Bombyliid fly, *Systachus* sp., as well as a male of *Cutopsilia florella*, Fabr. (by no means the only one seen), were taken on the same tree.

The *Combretum* attracted besides *Aeræa doubledayi*, the Lycænid *Axiocerees hurpax*, Fabr., a male, and the fine wasp *Belonogaster griseus*, Fab., ♀, which has a conspicuous yellow spot on the side of the abdomen, also a number of the brilliantly coloured Braconid *Iphiaulax whitei*, Cameron. On the same plant was found a Lady-bird,

* Or possibly *Tricalysia jasminiflora*, Hook., of the same natural order.

Chilomenes sp., which is in the National Collection, but without a name.

On *Dombeya* flowers, besides ants, three specimens of the Cetoniid *Rhabdotis sobrina*, G. and P., were taken.

Certain Aculeates were taken at flowers of one sort or another which it is not now possible to distinguish:—*Belonogaster guerinii*, Sauss., ♀, var. *dubius*, Kohl, *Elis* (*Dielis*) *fasciatella*, Hübn., ♂; also the long-waisted, black, red and yellow wasp, *Eumenes lucasia*, Sauss., ♀. This last is the third specimen known to Col. C. T. Bingham, the type being at Paris and the co-type in the British Museum from Bab-el-Mandeb (2,500 miles away); lastly a small slender, black, white-ringed solitary wasp, *Labus rarus*, Bingham, ♀, a new species said by Col. Bingham to come very near the Javan species that is the type of the genus. It would appear to be the first notice of this genus in Africa.

Other things that were picked up on that memorable day were a worn specimen of the pale fawn-coloured *Mycalesis simonsii*, Butl., one of two or three that were seen at one partially shady spot; a large "dry" *Terias brigitta*, Cram., ♀; a *Tryxalis* sp.; a fly, *Anthrax* sp.; and a beetle, *Zophosis angusticollis*, Deyr., found running rapidly over the ground at the "World's View," close to the grave of C. J. Rhodes.

The account of the expedition would not be complete without mention of the swarms of the Red Locust, *Schistocerca peregrina*, Oliv., which during the drive back to the train rose in glittering clouds on every side. It was, however, not without repeated efforts that a few specimens were netted out of the many thousands seen.

In the town of BULUWAYO, *Zophosis caffer*, Deyr., was taken running over the ground, while by turning over stones many things were obtained, including the curious hairy beetle, a Heteromeron, *Usagaria australis*, Pér., four specimens; *Psaryphis* sp., which is not represented in the British Museum; the Geodephagid, *Omostropus consanguineus*, Pér., three; the "Staph," *Myrmecodonia procaæ*, Pér.; a weevil; and the small dingy bug, *Pododus depressus*, Walk.

About the filter-beds near the Railway Station the Lycænid *Zizera lysimon*, Hübn., one, and *Alocides taikosama*, Wallgr., two males, were taken.

The two beetles, *Meligethes* sp. and *Pseudocolaspis* sp.

(the last mentioned in the National Collection but unnamed), and the small dingy bug *Agonoseclis puberula*, Stål., were taken either at or near Buluwayo, or at the Matopos; the beetle *Pogonobasis* sp. (unnamed in the British Museum) was taken somewhere in South Rhodesia prior to our arrival at the Falls, but the locality cannot be now designated, for the notes concerning these insects are unfortunately defective.

THE RAILWAY JOURNEY FROM BULUWAYO TO THE VICTORIA FALLS.

September 11th, 1905.

RED BANK STATION (19 miles from Buluwayo).

We took alongside the train *Teracolus achinc*, Cram., a male; *T. antigone*, Boisd., a male; and two fine specimens of *Papilio angolanus*, Goeze [= ? *corinneus*, Bert.], which had probably been disturbed from the drippings of the water-tank.

SAW-MILLS STATION, near Umguzi (57 miles from Buluwayo).

A male of *Belenois mesentina*, Cram., was netted, also a *Noctua* flying in the sun. The Red Locust, *Schistocerca peregrina*, Oliv., was abundant. By great exertions we succeeded in catching two.

GWAAI (89 miles from Buluwayo). Lat. 19° 7' S. Altitude 3,240 feet.

Towards evening the train stopped in a stretch of flat, bare country beside a reedy pond to take in water. A fine specimen of *Charaxes saturnus*, Butl. (the only one we saw in our travels), was taken flying about a low tree. We also took the brilliant cardinal-red dragonfly, *Crocothemis erythraea*, Brullé.

Sweeping the rank vegetation by the pond yielded a multitude of small insects, amongst them a number of the singular fly *Diopsis affinis*, Adams, which carries its eyes and antennae upon long rigid stalks or horns projecting on either side of the head. The appearance of these little black and red flies forcibly suggests a "Watkin Range Finder" in miniature, the eyes being so far separated as to afford an appreciable base-line; if the insect were

resting on the under-side of a stalk it would be able to see its enemies or prey above it without exposing itself. With the *Diopsis* were *Musca? domestica*, Linn., *Scopdon* sp. and other small flies; two small Scoliads, *Myzine* sp., in too bad condition to name; and other insects, including the Phytophaga, *Haltica pyritosa*, Erich., *Hispa spinulosa*, Boh. [not *H. spinulosa*, Schönh.], *Chaetocnema* sp., and a small moth, *Tinægeria* sp.

An unnamed Geometer, the cosmopolitan Tineid *Plutella cruciferarum*, Zell., and the *Blatta Cirphis* [*Paraplecta*] *pallipes*, Stål., all came to light in the train on the night of Sept. 11th between Gwaii and Wankie.

THE VICTORIA FALLS OF THE ZAMBESI.

Lat. 18° 0' S. Altitude 3,000 feet. September 12-19.

This was our furthest point and the locality from which we expected most.

Apart altogether from the magnificence of the Falls themselves and the geological puzzles that they afford, the locality presents certain peculiarities to the botanist and entomologist.

Picture a rolling sandy plateau a little over 3,000 feet above sea level. Low distant hills bound the view, though the characteristic South African kopje is for once absent. Above the Falls the banks of the Zambesi are low and almost flat, the country on either side of the river resembling much of that passed through in the railway journey from Buluwayo. The forests of South Rhodesia are chiefly composed of deciduous trees of moderate size, for the most part tending to be flat-topped and so harmonising with the horizontal strata and giving the landscape a character of its own. The undergrowth of scrub is, as a rule, scanty and easily traversed, while the coarse grass and other herbage was so sparse as to leave much burning sand quite bare; though it must be borne in mind that our visit was towards the end of a very dry season. Doubtless during the rains much of this sand would be covered with vegetation and gay with flowers, but as it was we found loose dry sand extending to within a very few feet of the *Papyrus* growing at the water's edge. The banks above the Falls are fringed with a narrow belt of shady wood in which (especially on the right bank) the small date-palm, *Phoenix reclinata*, is the prevailing tree,

and a shrubby *Ipomœa* was at the time of our visit the most striking flower. Here and there towered the monstrous Baobab tree, *Adansonia digitata*, with stem like an inverted carrot. The first leaves on the commoner forest trees spread an emerald tint suggestive of spring and affording a refreshing contrast to the parched herbage and scorching sand.

Opposite to the Falls is the "Rain Forest," poetically called by the Barotse "The place where the rain is born." This stretches along the cleft for three-quarters of a mile, not counting the similar growths on the "Knife-Edge." Between the Rain Forest proper and the edge of the chasm, where the spray is most drenching, is a strip of coarse boggy grass and herbage looking for all the world like a bit of Exmoor into which the bright blue flowers of *Lobelia erinus* have escaped from some parterre. The forest proper, from 50 to perhaps 300 yards wide, is of varied growth, in which large specimens of *Ficus* with their characteristic stems are a prominent feature; but towards the Falls it is bounded by a dense hedge of very bright green trees, *Eugenia cordata*, an evergreen of the myrtle tribe. The amount of spray, or "Rain," naturally varies with the height of the water and the force and direction of the wind. A sound that one soon learns to associate with the ceaseless roar of the cataract and the pattering of the spray-drops on the forest leaves is the musical cry of the "emerald-spotted dove" (*Chalcopelia afra*).*

We saw the Falls at a period of low water, but if this detracts from their grandeur, and above all from their characteristic mystery (by the shrinking of the spray columns), it enables one to see them better and so better comprehend their weird topography. But though the most absorbed collector cannot fail to be impressed by such unwonted surroundings, this is not the place to dwell upon the majesty of the Falls themselves, or the airy beauty of the brilliant rainbows that attend them by day or their more ghostly representatives in the moonlight.

Two pre-eminent impressions remain graven upon the memory—a vast river over a mile in width, dotted with

* For an excellent account of the botany of Southern Rhodesia, with a good description of the Matopo Hills and the country about the Falls, see a paper by Miss L. S. Gibbs, F.L.S., *Journal Linnean Soc.* 1906, pp. 425-494.

wooded islets, glides noiselessly through the burning sand, coming one knows not whence; and again the same mighty river, with scarce a warning rapid or even swirl upon its peaceful waters, suddenly draws a veil of spray over its face as with a mighty roar it flings itself down 350 feet into a chasm athwart its channel, and emerging thence, one can scarce see how, pursues its long mysterious course between grim basaltic crags through the incredible zigzags of the Batoka.

The hotel is situated close to the railway-station, in the open forest, about a mile from the Falls, and perhaps 100 feet above them, though geographically speaking below. The first insect to attract notice was a large *Acræa* flying about the tops of the trees, occasionally as many as a dozen together. After the exercise of some patience a fair series of specimens and a stiff neck were secured. These butterflies proved to be very beautiful, with pinkish fore-wings and white hind-wings; they were new to Mr. Marshall, but previously known to Mr. Trimen by two specimens only and then considered by him to be a variety of *A. anemosa*, Hew., to which Aurivillius gave the name of *alboradiata*. A long series amply proves this form to be a new species, which should consequently bear the name given to the supposed variety by Aurivillius. If, tired of gazing up at these beauties, the eyes were turned with relief to the ground, ants might be seen running swiftly over the sand with their abdomina borne high in the air. They were *Camponotus fulvopilosus*, De Geer, dull grey-black with pale brown hairy abdomen, very cryptic in their sandy home. The species was common about the hotel and on the way to the Falls. Also running swiftly over the sand a small beetle was taken, a *Zophosis* not in the National Collection. A flowering tree close to the hotel produced the widely spread *Apis mellifica*, Linn., race *adansonii*, Latr., as well as two other bees not yet determined.

The irrigated kitchen-garden of the proprietor attracted numerous insects, the most striking being *Acræa atolmis*, Westw., of which about a dozen, all males, were secured; it is a beautiful insect looking blood-red when alive; with them were taken three *A. atergatis*, Westw.; three male *A. anemosa*, Hew., one of them a dwarf, and two *A. alboradiata*, Auriv., ♂ and ♀. With the *Acræas* were two females of *Terias brigitta*, Cram., of the dry form, also one

Aphnaeus erikssoni, Trim. In the same garden were taken the steely-blue-winged wasp, *Discolia ebenina*, Sauss., four males and a female; also another somewhat fly-like wasp, the handsome black and yellow *Bembex capicola*, Handl., a male—only the second specimen known to Col. C. T. Bingham, the type being at Vienna.

The electric lights of the hotel attracted a considerable number of insects, but they were for the most part small and insignificant in appearance:—

NOCTUINA.

Xanthoptera opella, Swinh. (3), a common Indian species.

Homoptera scandatula, Feld. (1), a Catocalid.

Homoptera ? n. sp. (1).

Areyophora ? n. sp. (1). An Acontiad not in the British Museum.

Entelia polychorda, Hmps. (1), a variable Quadrid.

Metachrostis (Ozarba) snelleni, Wallgr., a very small Quadrid.

GEOMETRINA.

Comibwena leucospilata, Walk. (1). A pretty emerald.

PYRALINA.

Argyractis, sp. (2).

Stemmatophora chloralis, Hmps., n. sp. (5). A very distinct and pretty little insect, whitish-green with black central band. [Its description will shortly be published.]

Parthenodes scotalis, Hmps., n. sp. (5). A somewhat dingy Hydrocampid. See Ann. and Mag. Nat. Hist., 1906, p. 470.

Platytes, n. sp. (5). A beautiful Crambid which Sir George F. Hampson has kindly promised to describe.

Microthrix insulsella, Rag. (2). A dingy Phycid.

Etiella zinckenella, Treit. (1). An almost cosmopolitan Phycid.

Several other small moths not yet determined.

NEUROPTERA.

Halter ? *glauvirigi*, Koll. Three specimens of this very singular insect came to the lamps. Its very long, slender and spirally twisted hind-wings make it more like a flying machine than an insect.

? *Æstropis*, sp., and ? *Blymorphanismus* sp., two green Trichoptera, together with other caddis-flies more like European forms.

ORTHOPTERA.

A cricket.

HEMIPTERA.

Acanthaspis nugax, Stål., a Reduviid bug with a peculiar fetor.

COLEOPTERA.

Apate monacha, Fabr. (2 ♀).

Himatismus, sp. (3). Not in the British Museum.

Trochalus, sp. (1). In the National Collection, unnamed.

Xylopertha, sp. (1).

Two Longicorns, *Plocederus melancholicus*, Gahan, and *Tetradia lophoptera*, Guen. (= *fusciatocollis*, Thomps.), also came to light; the latter was captured by one of us on his bed, clinging closely to the sheet, and making a curious creaking noise when disturbed.*

Lastly a male *Acræa alboradiata* was taken fluttering on the floor below an electric light at 9.0 p.m.!

While one of us was busy with the electric lights a waiter excitedly called out that there was a "Tarantula" under the Stoop. He was most anxious that it should be secured, but declared that its bite was deadly. It proved very fleet of foot and doubled like a hare; other waiters joined in the chase, which turned out most exciting, especially when it ran over the neck of the ardent entomologist. When the fierce creature yielded at last to the soothing influence of cyanide it was seen to be of a pale reddish-brown, with pale grey abdomen, but armed with most formidable-looking red-brown mandibles, tipped with black. Black eyes added to its ferocious aspect. Ultimately a second specimen was bottled—together with one of another species.

Above the Falls the RIGHT BANK of the river (here the south-western) was the most readily accessible collecting ground, and perhaps for that reason received an undue

* "The voice no doubt proceeds from the mesonotum."—*G. J. Arrow, in litt.*

amount of attention. There our familiar friend *Limnas chrysippus*, a female somewhat small and dark, was busy with the flowers of *Combretum*. The genus *Acræa* was well represented: *A. alboradiata*, Auriv., though not so common as close to the hotel, was frequently seen, especially near the cascade at the western extremity of the Falls, locally known as the Leaping Waters; with this were several *A. anemosa*, Hew., all males, one very small; we also took three *A. encedon*, Linn.; a single specimen of *A. caldarena*, Hew., a male; *A. rahira*, Boisd.; an *A. atergatis*, Westw., stunted, and close to the Falls a female *A. atolmis*, Westw. In a way the most striking butterfly was *Hamanumida dædalus*, Fabr., for it was the first time that either of us had seen it alive. It was very common, flying close to the ground, and settling on the grey sand or dust with wings spread out flat, in which position it was curiously inconspicuous. *Precis elelia*, Cram., and *P. cebrene*, Trim., were both fairly common, but of *P. natalica*, Feld., and *P. archesia*, Cram., we took but one apiece, the former of the "dry" the latter of the moderately dark, or intermediate form. *P. sesamus*, Trim., was seen though not taken. *Neptis agatha*, Cram., graceful as always, was not uncommon; *Atella phalenta*, Dru., was there also, with its fearless sailing flight, returning again and again to the same spot. Two male *Byblia goetzius*, Herbst, were taken playing together, but *Charaxes varanes*, Cram., was more often seen than netted. The Satyrids were represented by the restless little *Ypthimas*; of these *Y. asterope*, Klug, was common enough in the half-shade, and with them were taken a couple of the var. *norma*, Westw., also two *Y. itonia*, Hew.

The "common white" of the Zambesi appeared to be *Belenois gidica*, Godt., and very dry they were; the dry form of *B. sericina*, Cram., was also quite common. Of the *Teraeoli* we took five species, by far the commonest being *T. omphale*, Godt., the males predominating; of *T. achine*, Cram., we took four males, of *T. antigone*, Boisd., one. Near the Leaping Waters we got a single female specimen of *T. phlegyas*, Boisd., and two *T. eris*, Klug, both males. Many of the genus fly quickly, but the flight of *T. eris* is specially rapid and erratic, so that in all probability more were seen than taken. *Terias brigitta*, Cram., both sexes, was fairly common, it was especially attracted by a small low-growing, lavender-flowered labiate, four or

five flying together over a patch of it. This butterfly has a jerky flight, so that it proved to be not so very easy to catch as one at first imagined. Of *T. senegalensis*, Boisd., two males were taken. The *Terias* were by no means so markedly "dry" as the *Teracoli*. A single *Papilio corinneus*, Bert. [? *angolanus*, Goeze], was secured.

The *Lycænidæ* were not very prevalent, and no species was abundant. Of the handsome *Stugeta boukeri*, Trim., and of *Axiocerces amanga*, Westw., we took single examples, but *A. harpaæ*, Fabr., was commoner, especially among reeds and sedges at the water's edge. Of *Hypolycæna cocculus*, Hopff., *Zizera lysimon*, Hübn., and *Liptena* [= *Durbania*] *pallida*, Trim., we took but one each, the latter at flowers of *Ipomæa*.

The Skippers were represented by solitary male individuals of *Gegenes occulta*, Trim., and *Parnara mathius*, Fabr. (= *mahopani*, Trim., = *inconspicua*, Boisd.).

In addition to the butterflies already named the following may be mentioned as being taken while drinking at the mud of small inlets and backwaters of the right bank of the river :—

Both sexes of *Acræa alboradiata*, Auriv., and *A. atolmis*, Westw., of which latter the bright coppery-red looks on the wing almost blood-red. *Belenois gidica*, Godt., and *Belenois mesentina*, Cram., both males. Of *Terias brigitta*, Cram., contrary to the usual rule with Pierines at water, a female was taken, but this species, though certainly attracted by water, is of a restless habit like *Ypthima*, and seldom settles. Of *Papilio leonidas*, Fabr., three specimens were taken at mud and others seen; lastly a specimen of *Axiocerces amanga*, Westw.

So much for the butterflies found on the right bank. The moths were far less numerous, and the only things brought home were a Geometer, *Gracillodes caffra*, Guen.; a *Crampus* sp. and another a small, and as yet unnamed Pyrale, *Argyrectis* sp.

As might have been expected Dragonflies were fairly numerous, especially a species with a full "cardinal-red" body, *Crocothemis erythræa*, Brullé, which has a very wide range in Africa. Some of these were taken at mud puddles in the back-waters, others about the rocks which extend far into the river above the Falls, rocks on which one often saw the Snake-bird, *Plotus levaillanti*, sitting absolutely still and giving an appropriate finish to the

peaceful landscape. Another large and handsome species, *Pseudomaeromiu torrida*, Kirby, with a pair of sapphire-like spots behind the eyes, was common, as was also the smaller *Pseudagrion deckeni*, Gerst. Besides these were other Dragonflies not yet named.

A *Myrmelcon* sp. was noted as being the colour of dried grass. Some "white ants" were taken, but, so far as our observations went, Termites are not as common at the Falls as in other parts of South Africa that we visited.

Very little attention was paid to *Diptera*, partly perhaps because, fortunately, they did not pay the usual amount of attention to us; only two were brought home, *Sarcophaga* sp. and *Hæmatopota* sp., the latter taken on the "topi" of the captor.

Of the Aculeates the most striking were the Carpenter-bees, of which the commonest was *Xylocopa divisa*, Klug, found at *Combretum*, or other flowers, though one, a male, was noted as hovering persistently about a tree overhanging the river. The male of this bee is of a beautiful "old-gold" colour; of this sex only two were taken, but females, of the variety with the band on the back of the thorax white in place of "old-gold," were commoner, and four or five specimens were secured. Of *X. caffra*, Linn., we took two specimens, both females of the variety *mossambica*, Grib., with a white ring in place of the usual two yellow rings. Of *X. olivacea*, Fabr., we got but a single female. We met with three species of the very slender-waisted wasps of the genus *Ammophila*, viz.:—*A. ludovica*, Smith, a female, and *A. beniniensis*, Pal. de Beau., a male, both at wet mud, while a female of *A. ferrugineipes*, Lepel., was taken at flowers. Of the large and handsome black and yellow *Sceliphron spirifex*, Linn., we only secured a single female, also at flowers. Of the long-waisted grey wasp *Belonogaster guerini*, Sauss., var. *dubius*, Kohl, a single worker was taken at mud. We also took single examples of *Salix* [= *Hemipepsis*] *vindex*, Smith, a male; the Scoliad *Myzine capitata*, Smith, a male, and the small red wasp *Odynerus carinulatus*, Sauss., a female, the last-named at wet mud. The integuments of two males of *Rhynchium rupeus*, Sauss., proved of a truly rocky hardness. Running over damp mud three specimens of a notable ant were taken, *Paltothyreus tarsatus*, Fabr., notable for its powerful bite, but still more for its evil odour, which is *very* strong and pungent, suggesting a mixture of formic acid and

bisulphide of carbon.* Running along the branches of the tree-*Ipomœa*, near the Leaping Waters, were a number of another ant, *Polyrachis schistacea*, Gerst., which we had seen at the Matopos on *Sclerocarya caffra*.

The *Coloptera* met with were not very numerous, but comprised *Pogonobasis* sp. (in the National Collection, but without a name), which was taken on the ground by Miss L. S. Gibbs; two specimens of *Seymnus* sp.; three weevils, *Bagous cœnosus*, Gyll., which Mr. G. A. K. Marshall had previously seen from Uitenhage, Cape Colony, only; *Rhabdinoceris brachystegia*, Mrshl. (*in litt.*) and *Xenorrhinus incultus*, Fst., the first specimen of the latter that Mr. Marshall had seen; also a Eumolpid, *Pseudocolaspis chrysitis*, Gerst.; and two *Heteromera* of the genus *Opatrum*, under dead wood. Two specimens of *Adesmia intricata*, Klug, a *Heteromeron* only represented in the National Collection by specimens from Mozambique, were found crawling on the ground near the Leaping Waters.

The "Red Locust," *Schistocerca peregrina*, Oliv., was by far the most common and most conspicuous of the *Orthoptera*; as usual it was chiefly found among coarse grass, but could not be said to be gregarious.

In shallows in the river just above the Falls, a small banded water-snail, *Cleopatra morrelli*, Preston (described as n. sp. in April 1905), was to be found, together with a spotted species with sinuated lip, *Melania victoriae*, Dohrn.

The LEFT BANK of the river differs somewhat from the right. The ground does not lie quite so low in reference to the water, there is more wood and scrub but less grass and fewer palms. A female *Limnas chrysippus*, Linn., was seen at water; of the *Acrææ* the commonest was *A. encedon*, Linn., males predominating, while single female specimens of *A. atolmis*, Westw., and *A. anemosa*, Hew., turned up. *Precis clelia*, Cram., was fairly common, and *P. sesamus*, Trim., was seen, as is its wont, fluttering about and settling under the shade of a dark bank.

The Whites were represented among our captures by two male *Belenois gidica*, Godt. *Teracoli* were far less common than on the right bank, probably because there was less of the open grassy country in which they delight; single specimens only of *T. omphale*, Godt., a male, and *T. eris*, Klug, a female, the latter at *Combretum* flowers,

* For Dr. S. Schönland's observations on the odour of this insect in Bechuanaland, see Proc. Ent. Soc. Lond. 1904, p. xl.

were secured. *Terias* was represented by a female *senegalensis*, Boisd., of the usual dry form, but also by a male *brigitta*, Cram., of distinctly *wet* character—a notable exception among so many very markedly dry butterflies.* A male and two females of *Catopsilia florella*, Fabr., were secured while feeding on the large-flowered species of *Combretum* that grows in the Zambesi scrub; this butterfly was almost certainly seen more than once on the right bank, but eluded capture, for *Catopsilia* is very swift of flight and hard to net save when busy honey-gathering. *Papilio demodocus*, Esp., was taken on the "Knife Edge" near the eastern extremity of the Falls.

Ariocerees amanga, Westw., at *Combretum* flowers, *Zizera lysimon*, Fabr., and *Liptena* [*Durbania*] *pallida*, Trim., were the only Lycænids brought home, the last taken near the top of the Palm Kloof. Between the last-named place and the railway bridge large Libellulid dragonflies were especially common, and comparatively easy to catch as they hovered over the path head to wind, like hawks. The commonest would appear to be *Pseudomacromia torrida*, Kirby; but there was also a species of *Macromia* as well as the slender *Pseudagrion* ? *deckeni*, Gerst.

Speaking of the railway bridge, perhaps one may be allowed to congratulate the engineer who designed it (Mr. G. A. Hobson, of the firm of Sir Douglas Fox and Partners) on a structure which seems as well fitted to its position alike in form and colour as such a thing can be; one shudders to think what *might* have been placed there by less sympathetic hands.

The only *Hymenoptera* taken on the left bank were two small bees, one at *Ipomæa*, the other *Podalirius rapidus*, Smith, ♀, hovering at *Combretum* flowers, also the coral-red Braconid *Iphiaulax whitei*, Cameron, and a long-waisted wasp, *Belonogaster guerini*, Sauss., var. *dubius*, Kohl, ♂.

Beetles were few and far between: a *Mylabris* sp. (or ? *Ceroctis* sp.), found (here, as well as on the other bank) in the flowers of *Ipomæa*, appears to mimic the Longicorn *Hylomela scarpunctata*, Fabr., a beetle that we met with only at East London. In the same flowers was another beetle, a long narrow purple fellow, not yet named.

A fly that attracted the attention of one of us by

* See DIXEY, Proc. Ent. Soc. Lond. 1905, pp. lxi-lxii, and *ibid.* pp. lxvi-lxvii. Compare LONGSTAFF on *T. hecabe*, L., Trans. Ent. Soc. Lond. 1905, p. 144.

biting his hand, *Hæmatopota* sp., was the only Dipteron taken.

If the left bank yielded us but a small bag it was some considerable consolation, at all events to the fortunate observer, to have the opportunity of contemplating from a distance of not more than 100 yards a family of Hippopotami disporting themselves in the water.

By the kindness of the Chartered Company's Forester, Mr. C. E. F. Allen, one of us was enabled to land on two of the wooded islands some miles above the Falls. Entomologically the results were disappointing, but here again Hippopotami came to the rescue, for the thicket on one of the islands was traversed in all directions by their paths, while in an open space lay the fairly recent bones of one of the uncouth monsters. The ubiquitous *Limnæa chrysipus* was represented by a male fly, but no *Aeræa* was taken, and the only Nymphalines were *Precis natalica*, Feld., with ocellated under-side, and a *Neptis* which eluded capture.

The common white of these islands was *Belenois severina*, Cram., of which five "dry" males were taken; but *B. gidica*, Godt., was nearly as common, and two of each sex were brought home. All the *gidica* from the Zambesi were of extreme dry type, drier than its congener. No *Terias* were taken and but three *Teracobi*, all males, two of *T. antigone*, Boisd., one of *evenina*, Wallgrn. Of *Eronia leda*, Dbl., a female of dry type was taken. The only Satyrids were four *Ypthima asterope*, Klug, var. *norma*, Westw. The Lycænids were even scarcer, as a solitary *Zizera lysimon*, Hübn., was the only Blue.

A Geometer, an "Emerald" with red chequered fringes, *Comibæna leucospilata*, Walk., was the only moth taken, while as unfortunately "other orders" would appear to have been even more than ordinarily neglected, the captures were limited to a single individual of the evil-smelling ant, *Paltothyrcus tarsatus*, Fabr., and a pretty black and white two-winged fly, *Tabanus* sp.

Mr. Allen was good enough to give us four insects taken in a druggist's shop at Livingstone, five miles above the Falls: they were two flies, one of them a large, fierce-looking fellow, *Tabanus* sp., a red-bodied wasp *Odynerus carinatus*, Sauss., ♀, and a Malacoderm beetle, *Melyris nobilis*, Gerst.

The easiest way down to the river at its lower level, below the Falls, is by the gorge known as the PALM KLOOF,

which is separated by the "Knife Edge" from the eastern portion of the chasm. The path leads rapidly down into a wood of singularly tropical aspect, bounded on either hand by walls of basalt, and thence to the water's edge. The collecting ground is very restricted and difficult, being almost co-extensive with the steep path, so that the ratio of things taken to things seen was a low one.

The butterfly that was most characteristic of the Kloof was *Neptis marpessa*, Hopff.; it was distinctly common, and we took it nowhere else. It has the graceful sailing, *sibylla*-like flight of the genus, but is smaller than the more generally distributed *ajatha*, Cram. Several males of *Leuceronia thalassina*, Boisd., were seen, all out of reach. They flew rather high, among the tops of the trees, and seemed to avoid the path. *Belenois gidica*, Godt., *B. severina*, Cram., and the wide-spread *B. mesentina*, Cram., were all met with in the Kloof; the latter, a male, flew fast. The path through the dark wood looked the very place for Satyrids, but only three were met with, two *Ypthima asterope*, Klug, one typical, the other of the var. *norma*, Westw., and a shade-loving *Mycalesis*, of which Mr. Trimen says: "near *campina*, Auriv., also like *anymana*, Butl., but the under-side very red." Our old friend *Papilio demodocus*, Esp., put in an appearance. A small, worn Lycænid, probably *Cacyreus lingens*, Cram., a male; a tailed blue, ? *Deudoryx* sp., ♀, which may possibly be new, and a male *Turucus telicanus*, Lang, represented that group. Three large Geometers, two of them *Conolophia conscitaria*, Walk., the third a "Thorn" not yet determined, were disturbed from the herbage.

The Phytophagous beetle *Monolepta vineta*, Gerst., was abundant by a spring near the bottom of the Kloof, flying in the sun, but might also be taken by sweeping shrubs.

Of all the collecting grounds at the Victoria Falls, one naturally anticipated most from the RAIN FOREST; it was accordingly the first, as it was the last place that we visited. One caution is necessary *in limine*: the area of the forest is so small, and the driest of sandy areas are so near, that it cannot reasonably be expected to yield valuable evidence as to seasonal forms, for a butterfly captured within its ambit may well have gone through all its early stages outside and have merely entered the spray-bedewed area to quench its thirst. Human experience points in this direction; for it is difficult to imagine anything more

refreshing than after some hours' collecting in the drouth to allow oneself to get wet through by the spray, which was truly grateful and comforting (especially in a thirsty land where beer is two shillings a small bottle). Repeated carefully-timed experiments showed that ten minutes in the hot sun and dry wind sufficed to dry one's garments thoroughly. The chief drawback to these natural "Rain baths" was the difficulty of manœuvring a sopping net, and the condition of some of the "very dry" *B. gidica*, when taken out of the net under such circumstances was deplorable.

One butterfly did not appear to appreciate the delicious smell of the damp vegetation, at all events our old friend *Limnas chrysippus* failed to put in an appearance. The *Aerææ* too were surprisingly scarce, only single examples of *A. alboradiata*, Auriv., ♀, *A. uncmosa*, Hew., ♂, and *A. atolmis*, Westw., ♀, were taken. Only one *Precis* is recorded, a ragged *natalica*, Feld., but *Neptis agatha*, Cram., was frequently seen sailing about the *Eugenia* trees. *Ypthima itonia*, Hew., was common enough, a specimen of *Y. asterope*, Klug, var. *norma*, Westw., was also taken. Another specimen was obtained of the *Mycalesis* (as yet unnamed), taken in the Palm Kloof, also one *M. safitza*, Hew. *Belenois severina*, Cram., was the commonest white; all taken were males; but extremely dry specimens of *B. gidica*, Godt. (males predominating), were fairly common, especially where the spray was heaviest. Three females of *Leuceronia thalassina*, Boisd., were taken, also a female *Glutophrissa saba*, Fabr., which was so extremely "dry" as to have lost all trace of mimicry of *Nyctemera*. Of *Terias senegalensis*, Boisd., ♀, *T. brigitta*, Cram., ♂, and *Teracolus antigone*, Boisd., ♀, single examples were secured. That only one *Teracolus* was taken is not surprising, since the genus especially haunts very dry and open places.

Papilio leonidas, Fabr., flew slowly about the *Eugenia*, with the manner of a Danaid, but the model, if such there be, was not seen; * two specimens were secured.

Zizera lysimon, Hübn., met with occasionally in all the Zambesi hunting grounds, was really common in the Rain Forest only, probably the other places were too dry for it. Of other Lycaenids single examples only were taken, to

* In North-East Rhodesia, on the Chambezi, some 700 miles away, it flies with and appears to mimic *Tirumala petiverana*, Dbl. and Hew. See also Trimen, "South-African Butterflies," vol. III, 1889, p. 213.—F. A. D.

wit, *Tarucus telicanus*, Lang, ♂; *Everes cissus*, Godt., and *Catochrypsos malathana*, Boisd. (= *asopus*, Hopff.), the last-named sitting head downwards.

Somewhat unexpectedly we found Skippers commoner within the range of the spray than outside, the following presenting themselves: *Parnara mathias*, Fabr., a male and two females; *Gegeneis zetterstedti*, Wallgr. (= *hottentota*, Latr.), three; *Parosmodes morantii*, Trim., one, a species represented in the National Collection by a single specimen from Mashonaland presented by Mr. G. A. K. Marshall; and one *Baoris fatuellus*, Hopff.

It is curious that two Humming-bird Moths of different species were taken close together, and within a minute or two, *Macroglossa trochilus*, Hübn., and *Aellopus commassiae*, Walk. It is also curious that no smaller moths were brought from the Rain Forest. On the other hand *Diptera* were numerous; of these the most striking were two species of the strange stalk-eyed genus *Diopsis*; one, near to *dubia*, Bigot, was to be got in abundance by sweeping in the drier parts of the Forest, the other Mr. G. H. Verrall thinks may be *ichneumonca*, Linnæus' long-lost type of the genus. Of another fly, distinguished by its apple-green abdomen, *Odontomyia* sp., several were obtained by sweeping in moister places. The same method produced other flies, among them a specimen which Mr. Verrall thinks may be a local race of *Syrphus balteatus*, Deg., and four *Sepedon* sp.

A species of *Plecia*, with a reddish thorax, was flying lazily about the *Eugenia* trees in large numbers, with its legs trailing behind just as *Bibio marci*, Linn., does in English woods in April. Then there was a pretty black-and-white *Tabanus* sp.; a pair *in cop.* of another *Plecia*; two specimens, a ♂ and a ♀, of an Asilid that is perhaps *Promachus rüppelli*, Liv., but may be new, unfortunately taken without prey; a Syrphid, *Helophilus* sp., near to but not identical with *africanus*, Verrall; lastly, something extremely like *Musca domestica*, Linn., was taken!

As might have been expected Dragon-flies were fairly numerous, prominent amongst them the large and handsome *Pseudomacromia torrida*, Kirby, flying in the open swampy space between the belt of *Eugenia* trees and the edge of the chasm; other species were *Phyllomacromia trifasciata*, Ramb., and (by sweeping) the Agrionid, *Brachybasis rhomboidalis*, Beauv., which appears to have a wide distribution in Africa.

Two wasps were taken, *Eumenes tinctor*, Christ, and *Ammophila beniniensis*, Pal. de Beau., both females, while sweeping produced an Ichneumon. Ants were represented by a solitary *Camponotus* sp., of which Col. C. T. Bingham writes, "New, but as a single specimen I cannot venture to describe it: allied to *C. scriceus*, Fabr."

The *Orthoptera* if not numerous were variously represented by a *Mantis* larva obtained by sweeping; four *Blattæ* of the genus *Ischnoptera* n. sp. (near to *bimaculata*, Gerst.), found under stones and running very rapidly away when disturbed; sweeping yielded also many grasshoppers, one of which had head and thorax conspicuously marked by two lateral yellow stripes. The locust *Prototettix impressus*, Stål., was taken on a tree.

Two very active little bugs were found under stones or leaves when looking for beetles, another was adorned with a red abdomen. Sweeping as usual yielded sundry Homoptera. The same operation produced a few beetles: a *Lagria* sp., in the collection at South Kensington, but unnamed, of which five specimens were obtained; a single *Cryptocephalus callias*, Suff.; two of the Phytophagid *Lesna chalcoptera*, Lac.; six *Haltica indigacea*, Illig.; two *Hispa* sp., also one *H. bellicosa*, Guér., of which the National Collection has specimens from the Gold Coast only. Lastly three Staphs, *Osorius rugiceps*, Boh., were found under dead wood.

In such a spot it was but seemly to find an Amphibian, accordingly we may note that a toad-like frog was abundant among the marshy spray-drenched grass between the Rain Forest and the Chasm. Many of these were extremely small, hardly larger than blue-bottles. A large specimen evacuated a mass of elytra, etc., of *small* beetles, apparently mostly geodephagous but some perhaps phytophagous; this was interesting, in so far as it bore out our experience that the Coleoptera of the Forest were very small.

Three species of land-snails were found in the Rain Forest; two turreted forms, *Opcas octona*, Chem., under stones, and the transparent *O. mamillata*, Craven, in like situations, both gregarious. Sweeping grass yielded the delicate, transparent, horny *Succinea ? badia*, Mor., very near to the British *S. putris*, Linn.

A Barotse boy, a servant of Mr. Allen's, collected for us a number of *Paludina capillata*, Frauenfeld, but exactly where he found them is not on record.

INSECTS TAKEN ON THE RAILWAY JOURNEY FROM
THE VICTORIA FALLS TO EAST LONDON.

September 20th, 1905.

MATETSI STATION. 230 m. from Bulawayo.

Precis cebrene, Trim., seen.*Lycæna (Castalius) hintza*, Trim., ♂, one.*Pseudagrion ? deckeni*, Gerst. A small dragonfly, the colour of dead grass.

KATUNA STATION.

Precis cebrene, Trim., one, ♀.

NORTH OF DEKA STATION.

Glyphodes negatalis, Walk., a Pyrale of very wide distribution (of the sub-genus *Dysallacta*, Led.), taken in the train by Mr. D. Gunn.

DEKA STATION.

Limnas chrysippus, Linn., ♀.*Lycæna osiris*, Hopff., ♂, at water.*Lycæna asopus*, Hopff., ♂, do.*Eumenes lepeletieri*, Sauss., ♀, at water, a yellow wasp with a black cross on the abdomen.

WANKIE STATION. 212 m. from Bulawayo. 2,450 feet.

Teracolus antigone, Boisd., ♂.

LUKOSI STATION. 196 m. from Bulawayo.

Anisodactylus nitens, Pér., Carabid beetle, under a stone.

INYANTUE STATION. 177 m. from Bulawayo.

Sphingomorpha chloreca, Cram., a Noctua that truly deserves its generic name, caught at light in the train by Mr. D. Gunn.

S. OF INYANTUE.

A Dipteron, *Argyramæba* sp., in the British Museum unnamed.

MALINDI STATION. 147 m. from Bulawayo.

An Ant-lion, *Myrmelcon* sp., at light in the train.

September 21st, 1905.

BULAWAYO. Lat. 20° 9' S. Alt. 4,470 feet. Near the railway station.

Acræa doubledayi, Guér.; also the widely distributed Lady-bird *Exochomus nigromaculatus*, Goeze, a bug, and some unnamed *Orthoptera*, all taken by sweeping.

PLUMTREE STATION. S. RHODESIA. 4,560 feet. 65 m. S. of Bulawayo.

Acræa doubledayi, Guér., ♀, fluttering close to the ground.

Axiocerces harpax, Fabr., on the flowers of a yellow composite.

September 22nd, 1905.

TSESSEBE STATION. 94 m. S. of Bulawayo. 3,900 feet.

The ant *Camponotus fulvopilosus*, De Geer, running on the ground.

SHOSHONG ROAD STATION. Near the tropic. 3,250 feet.

A number of the ant *Camponotus maculatus*, Fabr., under the bark of a log.

ARTESIA STATION. BECHUANALAND. Lat. circa 24° S. 3,100 feet.

Teracolus antigone, Boisd., ♂.

Zeritis simplex, Trim., ♂.

Spindasis ella, Hew.

Stugeta bowkeri, Trim.

Syrichthus [Pyrgus] sataspes, Trim.

Gomalía albofasciata, Moore, a dwarf.

The two Skippers were taken at water, as well as the wasp *Eumenes lepelletieri*, Sauss., ♀, and the common bee *Apis mellifica*, of the usual S. African form.

MOCHUDI STATION. BECHUANALAND. Lat. 24° 22' S. 3,100 feet.

Acræa anemosa, Hew., ♀, drinking at the drip of a tap.

Zeritis molomo, Trim., ♀.

Hesperia spio, Linn., at the flowers of a small yellow *Hibiscus*.

CROCODILE POOLS STATION. About Lat. 24° 40' S.
3,300 feet.

A beetle, *Zophosis* sp., not in the British Museum Collection, was taken running rapidly over the sand, which when alive it exactly matched in colour.*

OOTSI STATION. Lat. 25° 0' S. 3,620 feet.

Axiocercus harpax, Fabr., a female taken and another seen at a shrub with flowers forming yellow tails. A bug and a small Lady-bird, *Seymnus* sp., taken at *Combrctum* flowers.

PITSANI STATION. Lat. 25° 26' S. 4,420 feet.

Semiothisa brongusaria, Walk., a boarmid, at light in the train.

The two beetles *Lycus* sp. and *Bostrychus brunneus*, Murray, a Malacoderm, were taken this day somewhere in British Bechuanaland, but the exact locality was not recorded.

MAFEKING. Lat. 25° 56' S. 4,190 feet.

Sterrha sacraria, Linn. (1), *Crambus tenuistriga*, Hmps. (1), and two other moths, taken at lamps in the town. The S. African specimens of the first-named are much less beautiful than the European, as they lack the crimson.

WARRENTON STATION. 28° 11' S. 3,930 feet.

Sept. 23, 1905. *Hesperia (Syrichthus) spio*, Linn. [= *vindex*, Cram.], one at water.

POKWANI. 28° 43' S. 3,650 feet.

The ubiquitous *Utetheisa (Deiopeia) pulchella*, Linn.

Sept. 23, 1905. ORANGE RIVER STATION, Cape Colony, lat. 29° 38' S.; alt. 3,540 feet, an ichneumon, and at KRANSKUIL, lat. 29° 51' S.; alt. 3,700 feet, a number of Phycids were taken at the train lights.

* Many black beetles cover themselves with fine particles of the sand on which they live, and so easily escape observation. This I frequently noted in 1905 among the many *Heteromera* that are found on the outskirts of the Sahara at Biskra. Whether the fine particles merely fill in the interstices of the sculpture, or are attached by a secretion, I was not able to determine, but in any case they were easily rubbed off in the killing-bottle, or when handled.—G. B. L.

Sept. 24, 1905. SHANKS STATION (E. of Steynsburg Junction), c. 5,000 feet; a cricket was found under a stone, and in like situations six beetles, *Trigonopus*, sp., not in the National Collection; the Carabids, *Harpalus vanthographus*, Wied., and *H. sub-aëneus*, Dej.; and the Chrysomelid, *Polysticta 24-signata*, Thunb., three specimens; as well as a number of the pungent ant, *Acantholepis vestita*, Smith.

HANNINGTON STATION., alt. 5,170 feet; the same *Trigonopus*, another *Polysticta 24-signata*, Thunb., and *Harpalus fusco-aëneus*, Dej., were found under stones.

CONTAL STATION, a few miles East of Hannington, alt. c. 5,200 feet; under an old sleeper, three beetles were taken: the same *Trigonopus* that had been met with earlier in the day, *Harpalus rufo-cinctus*, Chaud., and a Carabid near to *Percus*, not in the British Museum.

STORMBERG JUNCTION, lat. 31° 28' S.; alt. 5,300 feet; a few hundred yards from the station we saw swarms of a purplish-grey locust with yellowish-drab wings and yellow hind tibiae, *Acridium pardalinum*, Walk. We had seen several flights shortly before reaching the station, but now we got amongst them. They did not fly very far, and the swarms were many rather than excessively large. The wings of those captured were much frayed, presumably by long flight and knocking against obstacles, but it is quite possible that individuals with damaged wings were more easily caught than the sounder specimens.

Turning over stones was fairly productive, as it yielded *Harpalus rufo-cinctus*, Chaud. (= *rufo-marginatus*, Boh.), seven; *H. natalensis*, Boh., four; *H. clavipes*, Boh., two; *H. sub-aëneus*, Dej., two; *H. fusco-aëneus*, Dej., three; the red and black *Hister cruentus*, Erichs., four under one stone; two other Carabids not yet named; *Polyhirma gracilis*, Dej., one; the two weevils, *Rhytirrhinus lituratus*, Fahr., and *Stramia ? fähræi*, Fst., one each, as well as an immature female of *Blatta orientalis*, Linn., and two very large ants, *Acantholepis vestita*, Smith. A specimen of *Pyrameis cardui*, Linn., was taken on the hill-side, but the day was scarcely fitted for butterflies.

LOWER INCLINE STATION, c. 4,500 feet; five or six specimens of *Polysticta 24-signata*, Thunb., were found close together under a stone.

QUEENSTOWN, Cape Colony, lat. 31° 50' S.; alt. 3,500 feet. In the Public Gardens just before dark a large

?*Plusia*, or small ? *Sphinx* was seen at Verbena flowers, but missed. Shortly after leaving the station two of the widely distributed Crambid, *Eromene ocella*, Haw., flew to the lights of the train.

EAST LONDON. Lat. 33° S. Sea level.

SECOND VISIT. Sept. 25-29.

Six weeks had elapsed since our first flying visit to this place. After an unusual drought it had rained the day before our arrival, and it was blowing a violent gale when early in the morning we came to the end of our long railway journey of six days and six nights. The gale terminated with heavy rain that greatly damaged the condition of the butterflies. One victim of the flood, a female Saturnid, *Arina forda*, Westw., was rescued from drowning.

A good deal of our time was spent on our old ground in the QUEEN'S PARK. The Poinsettia flowers were over: energetic sanitary reformers had nearly completed the covering in of the unsavoury stream, but the operations of the Kaffir workmen had wrought sad havoc in some of the best collecting ground.

Mylothris agathina, Cram., did not appear to be nearly so common as before, but perhaps this was owing to the absence of Poinsettia flowers to assemble them. There was however no doubt that the closely allied *M. rüppellii*, Koch., was common enough. The males of both these allied species have a strong and seemingly identical sweet-briar-like scent. The very local and singularly elegant *M. trimenia* was quite common, both sexes being well represented.

Belenois severina, Cram., and *B. zochalia*, Boisd., were both very common; of the latter the females seemed to be more numerous than the males, perhaps because more distinctly coloured.

The beautiful *Eronia elcodora*, Hubn., was quite common. A few *Pinacopteryx charina*, Boisd., were taken, all "dry"; a male *Byblia goetzius*, Herbst, significantly a very fresh specimen, was distinctly of the wet form, but, with this possible exception, there was no evidence that the recent rains had produced any change of type, probably there had not been sufficient time. The only *Teracoli* noticed in the park were a male *achine*, Cram., and several *omphale*,

Godt., of both sexes. These *Teracoli*, with one exception that was intermediate, were decidedly "dry," but not so extremely so as our Rhodesian specimens. *Colias electra*, Linn., was seen but not taken.

Of *Papilio nireus*, Linn., form *lyæus*, Dbl., we secured two males, but we met with both sexes of *P. demodocus*, Esp. Of *P. dardanus*, Brown, perhaps the commonest of the three *Papilios*, two males and one female were taken, the latter of the form *ceneca*, which mimics *Amauris echeria*, Stoll. Of the last-named species four specimens were taken, also three of the closely allied *A. albimaculata*, Butl. Both forms are very hard to kill. *Limnas chrysipus*, Linn., was fairly common.

Lycænids were not so numerous as might have been expected in the Park, either as regards species or individuals. Of *Zizera lysimon*, Hübn., and *Cacyreus palemon*, Cram., single specimens were taken; females of *Argiolaus silas*, Westw., were fairly common, they flew high and settled on the tops of trees, but also visited flowers. A few of the widely ranging *Tarucus telicanus*, Lang, were to be seen, two of them whilst at rest were observed to move the hind-wings alternately backwards and forwards in their own plane.

On the occasion of our former visit we saw no Satyrids, but this time two specimens of *Pseudonympha cassius*, Godt., turned up, as well as two females and a male of *Mycalesis safitza*, Hew.

With the exception of *Charaxes varanes*, Cram., which was fairly common, though worn, the Nymphalines were not very prominent. *Eurytela hiarbas*, Dru., was less plentiful and in less good condition than on our first visit; of *Byblia goetzius*, Herbst, only a single male was seen, while a *Precis archesia*, Cram., was taken settled on the ground. Several fine *Pyramcis cardui*, Linn., were observed.

Among the flowers introduced into the garden portion of the Park, and tending to run wild, was the "Pride of Madeira," *Echium fastuosum*, a remarkable plant of the natural order *Boraginaceæ*, whose small white or blue flowers form solid spikes, often six feet high or more, the apparently simple spikes being made up of innumerable densely packed scorpioidal cymes. This proved very attractive to insects of all orders; among the numerous butterflies that fed upon the flowers was a single example

of the pretty Vanessid, *Hypanartia hippomene*, Hübn. The following insects were also taken on the spikes:—*Apis mellifica*, Linn., race *adansonii*, Latr., as was only to be expected; a Longicorn *Syssita vestigialis*, Pascoe; the Cetoniids *Oxythyrea marginalis*, Schönh., *Comythovalgus fasciculatus*, Schönh., and *Strengophorus flavipennis*, G. and P.; the first was abundant, the creamy white spots on a dark ground-colour greatly aiding its concealment.* In addition there were on the same flowers a fly of the genus *Catabrona*, three of the genus *Idia*, and another fly, the latter held in the clutches of a green spider with red-brown markings, which was practically invisible among the crowded flowers; the very small bee *Prosopis sandaracata*, Bingham, was abundant, as was also the prettily marked *P. 5-lineata*, Cameron; but of *Prosopis simplex*, Bingham, n. sp., unfortunately only a unique example was secured; finally there was a sawfly, *Athalia himantopus*, Klug, ♀.

Two specimens of *Gegeneis zetterstedti*, Wallgr., were the only Hesperids noted; this species settles with the forewings raised, the hind-wings nearly horizontal, like several of our English Skippers.

The following moths were taken, but doubtless the list might easily have been lengthened especially if we had worked at night:—*Macroglossa trochilus*, Hübn., at flowers in the late afternoon; *Syntomis kuhlweini*, Lefebv.; the day-flying Lymantriads *Laelia punctulata*, Butl., and *Aroa discalis*, Walk., males of the latter species were very common on the outskirts of the Park; the Geometers *Zerenopsis leopardina*, Feld., fluttering near the ground; *Craspedia internata*, Guen. (= *strigulifera*, Walk.), and the variable *Semiothisa brongusaria*, Walk.; we also kicked up a Pyrale, *Pyrausta incoloralis*, Guen., and two specimens of the Boarmid *Obocola inconclusaria*, Walk., one of each sex.

As usual the most obvious representatives of the Hymenoptera were the handsome Carpenter-bees, *Xylocopa caffra*, Linn., ♀; *X. fraterna*, Vachal, a male said by Col. Bingham to be not typical; *X. divisa*, Klug, ♀; and *X. flavo-rufa*, De Geer, four females; the last two species were practically confined to the purple flowers of a Leguminaceous shrub; *flavo-rufa* has a strong odour like our English Bumble-bees. Other Aculeates taken were the long-

* See LONGSTAFF, Trans. Ent. Soc. Lond. 1906, pp. 91-93.

pedunculated wasps *Belonogaster prausi*, Kohl (said by Col. C. T. Bingham to be not typical); the slender dark-blue-winged *Eumenes tinctor*, Christ, of both sexes, one male specimen, very starved, of Saussure's variety; the dull grey *Icaria cincla*, Lepel., ♀; *Pompilus ruficeps*, Smith, a female; a male *Pompilus* which is possibly new; *Polistes marginalis*, Fabr., ♀; *Larra agilis*, Smith, a female, taken on a bank of dry earth; a Scoliid, *Chalicodoma caelocera*, Smith, a male, taken at the purple flowers along with the *Xylocopa*. To these must be added ants from a community of *Camponotus maculatus*, Fabr., and a fine specimen of the coral-red Braconid *Iphiaulax whitei*, Cameron.

The handsome *Eristalis tanniops*, Wied., was conspicuous among the flies, which were not very numerously represented; another fly to which Col. Yerbury has been able to assign a name is *Chortolyga dasyops*, Wied. Other flies were ? *Syrphus* sp., *Idia* sp., and two *Biblio*-like *Plecia* sp., which floated in the air almost stationary with their long legs hanging down; sweeping yielded a *Diopsis*, but in this case only a solitary example which Mr. Verrall thinks distinct from the others.

The wide-ranging grasshopper *Catantops melanostictus*, Schaum, was abundant. On the leaves of "Pride of Madeira" were marshalled a number of immature specimens of a gregarious dark orange-striped Acridian, the same species that was seen at Bulawayo.

Although beetles were not numerous in the Park, we took, in addition to the Cetoniids previously mentioned, the following species:—*Macroma cognata*, Schönh., a handsome dark olive and yellow Cetoniid, flying at flowers; a Lycoid, *Haplolytus*, sp., a Cetoniid, *Gametis balteata*, De Geer, with similar colouring to the last, taken flying around or settled on the flowers of the same tree, together with a similarly Lycoid-coloured Braconid, *Zombrus* sp.; the Longicorns, *Promeces iris*, Pascoe, and *Alphitopoda maculosa*, Pascoe, var., by beating; *Trigonopus marginatus*, Wied., several under stones; also under a stone the Staph *Xantholinus hottentotus*, Sachse; a Phytophagid not in the National Collection, *Atechna inenervabilis*, Vogel, var.; *Apoderus nigripennis*, Fabr.; the metallic green *Colaspoma flavipes*, Har.; the Cassid *Aspidomorpha silacca*, Boh. [= *tecta*, var. Boh.]; and a weevil, *Balaninus apicalis*, Fähr, var. B., was obtained by beating.

Two bugs complete the list of insects taken in the Queen's

Park:—a black Pentatomid with red-tipped antennæ, *Aspongopus lividus*, Dist., and a large Coreid, *Carlisis wahlbergi*, Stoll, dark brown with red-ringed antennæ, a very striking thing on the wing, but very stinking in the net.

On Sept. 27, by the kindness of Mr. John Wood, accompanied by Mr. Rattray we spent a very pleasant afternoon on the NAHOON RIVER, a few miles to the north-east of the town. We were somewhat late in the day and a strong wind was another adverse condition, so that we got very few butterflies.

On the island where we lunched *Belcnois severina*, Cram., was abundant, and *Mylothris rüppellii*, Koch, the only representative of the genus, was common; *Pinacopteryx charina*, Bois., *Eronia cleodora*, Hübn., and *Atella phalanta*, Dru., also occurred. A geometer, *Ectropis spoliataria*, Walk., a small Noctua, *Metachrostis corniculans*, Wallgr., and a very handsome Agaristid, *Xanthospilopteryx africana*, Butl., taken off a tree-trunk, completed the Lepidoptera on the island. Sunning itself on another tree-trunk close by was a beautiful green Hymenopteron, *Ampulex mutilloides*, Kohl, ♀. Mr. Rattray caught a specimen of the scarlet Braconid, *Iphiaulax whitei*, Cameron, which appears to be common in South Africa.

Mr. Wood set a stalwart Kaffir to work with an axe to hack to pieces dead trees. This did not prove a very productive operation; moreover of the creatures found but a small proportion have yet been named. Among the beetles were single specimens of the Longicorn, *Promecidus chalybeatus*, White; the Sternoxid *Alaus mærens*, Germ., and a species of *Notiophygus*. *Blattæ* were numerous, Mr. R. Shelford has named for us *Hyposphæria stylifera*, Burm., immature; *Derocalymna? brunneriana*, Costa, several; also *Pseudoderopeltis albilutera*, Stål., two specimens, and *P. wahlbergi*, Stål., a male. Bugs were represented by a singularly flat form, well adapted to its life under bark. It goes without saying that woodlice were plentiful.

Taking a boat the Kaffir pulled us a mile or two down the river and we landed on the eastern bank, where rich flowery meadows promised great things, but the rising of the wind and the lateness of the hour led to disappointment. A single *Teracolus achine*, Cram., ♂, a Boarmid moth, *Osteodes turbulenta*, Guen., and a Pyrale, *Antigastra morysalis*, Walk., were the only *Lepidoptera* that we brought

away from a spot which under more favourable conditions should swarm with them. Beetles are somewhat less susceptible, and we took on flowers the pretty Cetoniid *Oxythyrea haemorrhoidalis*, Fabr., together with the commoner *O. marginalis*, Schön., also the Longicorn *Hyalomela scapunctata*, Fabr., which closely mimics a species of *Mylabris* (or ? *Ceroctis*) that we met with in South Rhodesia.

Sweeping added to the list the Lady-birds *Atechna hebe*, Clk., and *Cryptocephalus flavago*, Suff., the Weevil *Ellimenistes squamifer*, Boh.; and the *Phytophaga*, *Ootheca larpipennis*, Jac., *Gynandrophthalma malvernensis*, Jac., var.; *Inperus inconspicuus*, Jac., as well as a rather pretty bug *Veterna sanguinicrostris*, Thunb., the common grasshopper *Catantops melanostictus*, Schaum, and the locust *Prototettix impressus*, Stål.

We took two pedunculated wasps, *Belonogaster prawnsi*, Kohl, and *Ammophila ferrugincipes*, Lepel., a male; also an Ichneumon, and a number of ants, *Cremastogaster sordidula*, Nyl., var., and *Pheidole irritans*, Smith, of which last the soldiers alone have big red heads.

Turning over stones yielded the beetles *Trigonopus marginatus*, Wied., and *Lissogenius conspersus*, Burm., as well as the common South African Reduviid bug *Physorhynchus erux*, Thunb., and two scorpions.

A specimen of the Scarab *Syrichthus spurius*, Burm., was picked off the ground, while Mr. Rattray found a specimen of the large thick-legged Coreid bug *Rhyticoris terminalis*, Burm., also a large weevil with very hard integuments, *Mecorhynchus loripes*, Schönh., and two millipedes whose integuments turned the point of a No. 16. pin. Mr. Wood found lying dead on the left bank of the Nahoon a Carabid beetle, *Haplotrachelus* sp., which is not in the National Collection.

The Kaffir boatman caught several of a *Psammodes* unrepresented at South Kensington, they were crawling over the rocks by the lower landing-place, nearly opposite the Boat Club House.

Lastly, on the west bank when it was quite evening a Hesperid was netted, *Sarangesa motozi*, Wallgr. (= *pato*, Trim.).

An old termitarium on the high ground above the Club House yielded, besides sundry ants, *Cremastogaster weitzcheri*, Emery, a "night-adder," a small serpent said to be very poisonous.

Since our return to England, we have been much concerned at hearing of a disastrous flood at East London, which seems to have devastated the island in the River Nahoon where some of our collecting was done, and to have caused the death by drowning of several natives, including our Kaffir boatman and his family. Much damage has been done on the banks of the Nahoon and Buffalo rivers, and part even of the Queen's Park is reported to have been washed away.

Acting on the advice of Messrs. Wood and Rattray, we spent the next day, Sept. 28, on the "SECOND CREEK" of the BUFFALO RIVER, a delightful locality. It is approached by a pleasant walk over open downs where we met our old friends *Synchlœ hellica*, Linn., *Cotias electra*, Linn., and *Teracolus omphale*, Godt.; after a mile or so the path enters a wood, and descends rapidly to a brawling stream, which follows an impetuous course to a fall into a tidal pool, beyond which is a flowery meadow forming the delta of the creek. The wider tracks through the upper part of the wood had a home-like feeling, and one almost expected to see "Pearl-bordered fritillaries" disporting themselves about the flowers, but instead of these we found in moist places the pretty Satyrid, *Pseudonympha cassius*, Godt. These butterflies were of less "dry" form than most that we had met with, the majority of them might be better described as "intermediate." The more generally distributed and dingy *Mycalesis sajitzæ*, Hew., was also common; a female exhibited a supplementary ocellus on the fore-wing.

The commonest White was *Pinacopteryx charina*, Boisd., but *Eronia cleodora*, Hübn., *Belenois zochalia*, Boisd., and *Mylothris agathina*, Cram., were all present in some numbers, and one *M. trimenia*, Butl., was taken. *Teracolus omphale*, Godt., and *T. achine*, Cram., occurred in the more open places.

The *Acræinæ* were conspicuous by their absence, but the *Danainæ* were represented by *Amavris echeria*, Stoll, and *A. albimaculata*, Butl., as well as by *Limnas chrysippus*, Linn.

The only Nymphalines taken were *Byblia goetzii*, Herbst; *Atella phalantæ*, Dru., and a solitary *Precis archesia*, Cram., a species which according to Mr. Brooking of East London frequents dark holes in rocks.

Lycænids were not common, a solitary *Tarucus telicanus*,

Lang, and a couple each of *Avioceceus harpar*, Fabr., and *Phasis chrysaor*, Trim., one settled head downwards, were taken.

We took four Hesperids, viz. one each of *Hesperia spio*, Linn. (= *vindex*, Cram.), *Eretis djælvlav*, Wallgr., *Gegenes zetterstedti*, Wallgr., and *Pterygospilca fesus*, Fabr. The last named after dashing about wildly settled on the upper side of a leaf.

But few moths were seen, and two specimens of *Osteodes turbulenta*, Guen., and the Syntomid mentioned below were all that we took.

Beetles, on the other hand, were fairly numerous. Two species of *Heterochelus* (*Hoplinae*) were common on yellow composite flowers, buried head downwards so as to leave the hypertrophied hind-legs alone protruding like the mandibles of an ant-lion, the resemblance being increased in that by their adduction they could inflict a very respectable pinch.*

The greenish-white flowers of a climbing composite (? *Senecio* sp.) that spread in dense mats over some of the bushes by the stream were very attractive to insects. Two Aculeates, *Xylocopa divisa*, Klug, ♀, and *Eumenes tinctor*, Christ, ♀, 2, one of them a starved dwarf; the moth *Syntomis kuhlweini*, Lefebv. (one found to be in the tender embraces of a spider); the fly *Eristalis tawniops*, Wied.; the Reduviid bug *Harpactor erythrocnemis*, Germ.; two Lycoid beetles, *Acantholycus* sp. and *Haplolycus* sp., the latter numerous,† and clearly mimicked by the Cetoniid *Gametis balteata*, De Geer, were all taken off this plant, together with a Mantis that was presumably attracted by the insects rather than the flowers.‡

A soft-skinned Cantharid, *Decatoma lunata*, Pallas, looked conspicuous enough on a pale straw-yellow liliaceous flower.

The meadows by the estuary yielded a different lot of

* See LONGSTAFF, Trans. Ent. Soc. Lond. 1906, pp. 93-95.

† A pair remained *in cop.* for at least six hours.

‡ Another small Mantis, taken on a tree, bright leaf-green in colour, was kept alive for over a week. It was seen to catch a fly by a motion of lightning-like quickness and eat it, rejecting the wings and abdomen. When approached it would smartly assume the "praying" attitude, sometimes also turning its head in the direction of the visitor. It used to clean its eyes by passing its fore-legs over them, with an action like that of a cat cleaning its face. It also cleaned its antennæ in its mouth, bringing them down by its fore-legs.—F. A. D.

things, especially Phytophaga and Weevils. Thus *Malacosoma polita*, Jac., was abundant in the flowers of an Iris, while sweeping yielded *Ootheca lævipennis*, Jac., *Cryptocephalus polyhstor*, Suff., *Trochalus* sp., 2, and the Cetoniid *Oxythyrea hamorrhoidalis*, Fabr., as well as the following small Weevils:—*Eremnus gyrosicollis*, Boh., *Sciobius o'neili*, Mrshl., ♀, *S. pullus*, Sparr., *Strophosomus* sp., and two new species which Mr. G. A. K. Marshall has described* under the names *Eliministes callosicollis*, Mrshl. (4), and *Myorrhinus longstaffi*, Mrshl., the latter in abundance. With the beetles in the sweeping net was a Bombylius *Systæchus* sp., and two bugs, a black yellow-spotted *Stenozygum* that is possibly new, and the large pale ochreous fetid Pentatomid, *Basicryptus distinctus*, Sign.

Other beetles taken in the same locality were the Lady-birds *Chilomenes lunata*, Fabr., and *Polysticta macularis*, Dej.; *Melyris ciliatus*, Oliv., *Thysodactyla africana*, Chap.; a *Trochalus* apparently undescribed; a *Telephorus*; a *Lagria*; and a Scarabeid, *Syriethus spurius*, Burm., the last found in rotten wood.

Among *Orthoptera* were the big locust *Phymatcus leprosus*, Serv., the common *Catantops melanostictus*, Schaum, *Prototettix impressus*, Stål., the handsome *Acridium ruficorne*, Fabr., so named from the red tips to the double row of white spines on its black tibiæ, and two unnamed grasshoppers, one grass-green, the other a curiously soft species, black with scarlet rings and blotches.

The only flies taken were two Bombyliids of the genus *Systæchus*, one at flowers, the other by sweeping.

A few Aculeates complete the list, viz.:—*Xylocopa flavo-rufa*, De Geer, a male; *X. divisa*, Klug, a female; the prettily variegated *Polistes fastidiosus*, Sauss., a female; the grey *Icaria cincta*, Lepel., ♂; two small black bees *Halictus deceptus*, Smith, females; lastly a fine distinct red, yellow and black wasp, which Col. C. T. Bingham has described as *Odynerus longstaffi*, from a specimen in the National Collection from Natal, hitherto unnamed, making our specimen a co-type. Lastly an example of the blue-green Chrysid *Hcæachrysis simillimus*, Grib., was taken settled on a bare rock.

On our return walk we kicked up a *Noctua* in the wood, and as we reached its upper edge at about 3.0 p.m.,

* MARSHALL, Proc. Zool. Soc. Lond. 1906, pp. 922 and 932.

we found Termites on the wing in swarms; five specimens were brought home alive in separate pill-boxes, on reaching the hotel it was found that one had cast off a wing, another all four wings. Later in the afternoon *Syntomis kuhlweini*, Lefebv., was found in some numbers flying about, or settled upon a particular species of tree. The large Reduviid bug *Physorhynchus crux*, Thunb., was also taken on the wing. This insect usually carries its wings so closely appressed to the abdomen that when first seen it was thought to be apterous.

On the morning of sailing, Sept. 29, a somewhat hurried visit was paid by one of us to the scrub-crowned SANDHILLS seen from the ship that August morning when we first anchored at East London, but this expedition did not add much to our list.

Two ants turned up, *Camponotus cosmicus*, Smith, also taken at Estcourt, and *Polyrachis gagates*, Smith, of which but a single specimen was met with in this land of ants; there were also the following Aculeates: *Polistes marginalis*, Fabr., ♀, *Belonogaster guerini*, Sauss., ♀, var. *dubius*, Kohl (a very large specimen), *Eumenes tinctor*, Christ, ♀, *Icaria cincta*, Lepel., ♂, the big Carpenter bee *Xylocopa flavo-rufa*, De Geer, ♂, and two of the pretty little bees *Prosopis 5-lineata*, Cameron, taken at a red flowering shrub. The only other Hymenopteron was an Ichneumon with Lycoid colouring.

A fly that seemed to mimic a pedunculated wasp Col. Yerbury says may be the ♂ of *Baccha picta*, Wied., of which that author has only described the ♀ from the Congo and Guinea. Another fly taken would appear to be *Sarcophaga ? carnaria*, Linn.

Beetles proved less numerous than might have been expected: two tiger-beetles, the first we had seen in S. Africa, *Cicindela candida*, Dej., and *C. capensis*, Fabr., were common close to the sea on the bare sand, which they so closely resembled in colour as to be scarcely visible save when on the wing. Also running on the sand was a nameless *Zophosis* and an equally nameless *Anoplochilus*. The flowers of a species of Iris produced, besides abundance of *Malacosoma polita*, Jac., *Camptolenes fastuosa*, Lac.

Lissogenius conspersus, Burm., was taken flying in the sun, as was also *Scarabæus convexus*, Hausm., and the Cassid *Aspidomorpha tecta*, Boh., the latter looking like a golden spangle floating in the light. The Hopliine

Khoina bilateralis, Thunb., was found on flowers, and *Eurynotus muricatus*, Kirby, under bark.

The Coreid bug *Scrinetha amista*, Germ., seems to mimic a *Lycus*. Another bug taken was the Reduviid *Harpactor segmentarius*, Germ.

Locusts were rather common, conspicuous among them was a very fine specimen of the large, heavy and sluggish *Phymateus leprosus*, Serv., more glaucous than those taken at Ladysmith, so as to match more closely the light-coloured sand. The beautiful apple-green *Tryxalis stali*, Boliv., darker above, paler beneath, as is so often the case, was found at the verge of vegetation, while an abundant grasshopper found on the bare sand was highly cryptic. A curiously formed small Hemerobiid Neuropteran, *Mantispa ? tenella*, Erichs., was taken on the wing; when seen for the first time its resemblance to a Mantis is very striking.

Perhaps the locality was too much exposed for butterflies, at all events they were neither numerous nor remarkable:—*Amauris albimaculata*, Butl., ♀; *Eurytela hiarbas*, Dru., within 100 yards of the sea; *Byblia goetzius*, Herbst, ♀, dry; *Pseudonympha cassius*, Godt.; *Argiolaus silas*, West., ♀; *Mylothris rüppellii*, Koch, ♀; *Pinacopteryx charina*, Boisd.; *Colias electra*, Linn.; *Teracolus omphale*, Godt., ♀, and the Skipper *Eretis djælælæ*, Wallgr. A Geometer, *Obocola inconclusaria*, Walk., ♂, and the Lymantriad *Aroa discalis*, Walk., which was common flying about the scrub, were the only moths.

The lights at the hotel yielded only *Dorylus helvolus*, Linn., ♂♂; the very widely distributed Acidaliid *Idæa fibulata*, Guen., and one or two moths not yet named.

The cosmopolitan *Dermestes vulpinus*, Fabr., shared the hotel accommodation with us, while *Acanthia lectularia*, Linn., was even more intimate!

Thus ended our delightful collecting at East London, a place less known entomologically than many others in South Africa.

PORT ELIZABETH, CAPE COLONY. SECOND VISIT.

Lat. 34° 0' S. Sept. 30, 1905.

The stoppage on the return voyage gave us a long morning's collecting; but an accident separated us, so that while one visited Humewood, about a mile and a half to

the south-east, the other spent his time, more profitably as it turned out, on the more sheltered slopes of the left bank of Baaken's River, just north of FORT FREDERICK. At this spot butterflies were plentiful. The males of *Colias electra*, Linn., were common, as were both sexes of *Synchlōë hellica*, Linn., while *Pyrameis cardui*, Linn., was in abundance, some worn, but many in fine condition. The Skipper *Cyclopides metis*, Linn., was fairly common, but only two were taken; one *Gegenes zetterstedti*, Wallgr., a female, was taken; but out of many Lycænids seen flying about only a single specimen of *Zizera lysimon*, Hübn., was secured. This blue was found by us over a wide range of country, but nowhere in any numbers except in the Rain Forest, Victoria Falls.

A grasshopper, *Epachromia thalassina*, Fabr., with head, thorax and jumping legs green, otherwise yellowish-brown, was also taken.

On the north wall of the Fort itself, or on the ground close by, considerable numbers of the red and brown bug *Scantius forsteri*, Fabr., were found, for the most part paired. Many of them exuded a drop of clear liquid when pinned, and in one or two a slight, somewhat offensive odour was detected.

The swampy heath-like waste beyond HUMEWOOD and the woods at the back of it proved very barren of insect life, perhaps partly from the uniformity of the vegetation, partly from exposure to the sea-winds. A few *Synchlōë hellica*, of both sexes, and three or four *Pyrameis cardui*, were the only butterflies seen.

Stone-turning yielded a small beetle which Mr. L. Péringuey believes to be a new species of *Anaulacus*, but possibly a *Microus*; four *Eurynotus muricatus*, Kirby; another species of the same genus that may be new; one larva of *Luceola* sp.; also the Cockroach *Deropeltis erythrocephala*, Fabr., which, as is so common with the group, was very local and markedly gregarious.

Five specimens of an undetermined beetle were found on composite flowers. Sweeping produced a red-winged Homopteron, two dragonflies, *Sympetrum sanguineum*, Müll. (a common species), and the large and beautifully-coloured *Anax mauricanus*, Ramb.; all took some catching. A common-looking "Greenbottle," *Lucilia* sp., was taken, but the species, or others like it, was abundant throughout our journey.

The flowers of a yellow *Chrysanthemum* in the garden of the Humewood Hotel attracted a certain number of insects: *Apis adansonii*, Latr., ♀; the active green Longicorn *Promecis linearis*, Linn.; and the Hopliine *Dicranocnemus squamosus*, Burm., the last-named in abundance buried in the flowers (and in other *Compositæ*); but it was noted that their hind-legs did *not* mimic jaws.

CAPE TOWN. SECOND VISIT.

Lat. 34° S. October 2, 3.

One day was devoted to the ascent of TABLE MOUNTAIN by way of The Gorge.

Most of the collecting was along the road at about 1,200 feet above the sea. Very few butterflies were seen, a few *Pyrameis cardui*, Linn., also a few *Pseudonympha vigilans*, Trim., and a few of the Lycænid *Cacyrcus palæmon*, Cram.

The fine black and white Carabid, *Anthia 10-guttata*, Fabr., was not uncommon running on the path;* when handled it emitted a very pungent odour (one specimen of this beetle was taken in a pine wood just above the outskirts of the town). Under stones five specimens of *Microlestia tabida*, Fabr., were taken. But the greatest numbers of beetles were found on, or actually *in* composite flowers, especially those of a species of *Senecio*. The most abundant species was the Hopliine *Heterochelus forcipatus*, Burm., a species in which the posterior legs are enormously developed in the male sex; no females were seen. With these were a few (3 ♂, 1 ♀) of the allied *Dichelus dentipes*, Fabr., of which the males have large posterior legs. There were also a number of *Encyophanes* sp. (unnamed in Brit. Mus.) of both sexes. All these were buried in the disks of the flower with only the hind-legs protruding.† A specimen of the hairy Hopliine *Anisonyx lynæ*, Fabr., was taken in another composite flower (? *Gazania* sp.).

By shaking the flowers of a *Senecio* (?) into the net the following were obtained: *Ootheca tricolor*, Fabr., two; ? *Hedylbius* sp., six; a very small weevil, an Eriirrhinid of uncertain genus, one; *Oosomus* sp., seven; several *Tclephori* and a Cricket.

* Not so swift in its movements as the Biskra species *A. sex-maculata*, Fabr. Probably the struggle for existence is not so severe on the Cape Peninsula as on the Sahara.—G. B. L.

† See LONGSTAFF, Trans. Ent. Soc. Lond. 1906, pp. 93-95

At the flowers of a yellow leguminous shrub two workers of *Apis adansonii*, Latr., were taken, together with three bees of the genus *Megachile*, all males, all distinct species and all apparently new! However, Col. C. T. Bingham says that it is useless in that genus to name or describe males without females. It was noted with surprise that the beautiful strong-scented golden yellow blossoms of the *Protea*, a shrub characteristic of the Cape Peninsula, attracted nothing but a few flies. At about 1,400 feet *Bombylius lateralis*, Fabr., was met with, and the Satyrid *Pseudonympha vigilans*, Trim., up to 1,500 feet.

The summit, 3,600 feet, was in dense cloud, for the "table-cloth" was spread, and the only insects taken at that altitude were hairy Hopliines; two *Anisonyx lynx*, Fabr., and one *A. ursus*, Fabr.; of these two were on flowers, one on the wing.

Turning over stones at the foot of the LION HILL, c. 300 feet, yielded two ants, *Acantholepis capensis*, Mayr.; the beetle *Oncotus tardus*, Sol.; a larva of *Luciola* sp.; and the cockroach *Temnopteryx phalerata*, Sauss.

The next day we took the train to SIMON'S TOWN, which lies about fifteen miles to the south of Cape Town. Here our collecting was confined to a strip of sandy ground with eastern aspect, close to the shore and at the foot of the line of hills capped with sandstone crags perhaps 3,000 feet in height, which overlook Simon's Bay.

As we came out of the station a large blue-black Carpenter bee, *Xylocopa capensis*, Lepel., dashed at the head of one of us; forthwith his companion made violent efforts to catch the bee, and for some time the bewildered entomologist was in considerable peril between the swoops of the net and the assaults of the Aculeate!

The Heteromerous beetle, *Opatrum* ? *arenarium*, Fabr., was common in a very sandy place under stones, and in like situation were single specimens of *Harpalus fuscipennis*, Wied., and the black and red Reduviid bug *Acanthaspis lythrodes*, Germ., of which the British Museum possesses but a solitary example.

The dry sandy soil, scorched by the sun and exposed to the sea winds, is thoroughly suited to the taste of a *Mesembryanthemum*, which grew luxuriantly, its handsome flowers attracting many insects. Among these was a Hopliine beetle, *Lepitrix lineata*, Fabr., which was very abundant at one spot close to the railway-station. Unlike

the *Dicheli* and *Heterocheli* they do not bury themselves among the stamens of the flowers, but are as active as bees, flying very readily. A few specimens were also found in the spathes of the white arum, these curiously enough did not attempt to fly. On the other hand, some small black bees with white-ringed abdomen, *Halictus albofasciatus*, Smith, ♂, did bury themselves in the *Mesembryanthemum*, but nevertheless were so active as to be difficult to catch; associated with them, closely mimicking them, and almost equally hard to catch, were some flies, ? *Ploas* sp. and ? *Prorachthas* sp. The mimicry, especially in habits, was very striking during life, yet in the cabinet the insects look distinct enough.

On other flowers such small things were found as six green beetles, ? *Hedybius* sp., the tiny *Eurysthenes balyi*, Chap., a *Entrapela* sp., which stands without a name at South Kensington; *Attagenus* sp.; *Harpalus xanthoraphus*, Wied.; *Telephorus* sp.; the Hopliine *Pachygenema obscurepurpuria*, De Geer, a ♀, also one of each sex of a small bee, *Dasyppoda* sp., which Col. Bingham says is near to *betica*, Spin., but distinct, and the little *Halictus terminalis*, Smith, ♀. A yellow liliaceous flower was tenanted by a small beetle, *Notoxus inconstans*, Lafert.

The black and yellow *Ceroctis capensis*, Linn., was found in the yellow flower of a prickly composite, while in the flowers of *Senecio* ? *concolor* (a species with purple ray-florets) were numbers of a small Heteromeron, *Notoxus* sp.

Close to the beach, running swiftly over the sand and taking the short flights so characteristic of the genus, were several *Cicindela brevicollis*, Wied. An Asilid, ? *Dysmachus* sp., was also fond of settling on the bare sand. The Elater *Edistoma cuprea*, Linn., was also taken on the sand; during life it was of an iridescent bronze colour, which proved very fugitive.

On a tuft of grass, above the ground, a semi-papyraceous nest was found to be tenanted by a numerous community of ants, *Cremastogaster stadelmanni*, Meyr.

Lastly, on the heathy scrub on the hillside at Glencairn two Lycænids were taken, *Phasis thero*, Linn., and *Cacyreus thespis*, Linn. With them was a fly, *Hamatopota* sp.

Just before embarking we drove down to THE FLATS, near Claremont, but the weather conditions were unfavourable and the results wholly disappointing. *Pyrameis cardui* and *Pseudonympha cassius* were the only butterflies

obtained; the latter was worn and appeared to be of the wet-season form. An as yet undetermined moth (? *Pseudosterrha* sp.), a grasshopper and a few very ordinary flies, *Eristalis tenax*, Fabr., *Catabomba* sp., and *Calliphora vomitoria*, Linn., were the only other things taken.

Thus ended our eight weeks in Africa, resulting in the capture of some 2,500 specimens of all orders. So extensive is the fauna and so far from being exhausted that even in this scamper (for our journey may well be so designated), several new species were taken, while there remain a number of insects not yet worked out which almost certainly include several other novelties.

Our sincere thanks are due to Professor E. B. Poulton, F.R.S.; to the assistants of the Hope Department; to Mr. C. O. Waterhouse and all the staff of the Entomological Department of the Natural History Museum; to Commander J. J. Walker, Colonel J. W. Yerbury, Mr. W. L. Distant, Mr. R. Trimmen, F.R.S., Mr. M. Jacoby, Mr. G. H. Verrall, and Mr. L. Péringuey, for their assistance in naming our specimens. To Sir George F. Hampson, Bart., Col. C. T. Bingham, Mr. Guy A. K. Marshall, and Mr. R. Shelford, our special thanks are due for describing new species.

EXPLANATION OF PLATE XXV.

[See *Explanation facing the PLATE.*]

SEPTEMBER 26TH, 1907.